

THE BRONZE AGE GARDENS OF THE AEGEAN IN THE CONTEXT OF
CONTEMPORARY GARDENS IN THE NEAR EAST AND EGYPT

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By
Jordana H Wolf
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ABSTRACT

The purpose of this thesis was to analyze the form, content, and purpose of Aegean gardens in the Bronze Age using the available evidence from the Aegean islands, and interpreting this evidence through the lens of known gardens in the contemporary cultures of the Near East and Egypt. It argues that Aegean gardens, like the gardens of the Eastern Mediterranean, are used as value display, but that the people of the Aegean would have employed separate techniques for creating elite gardens due to environmental limitations and differing aesthetic and religious values. Using the available evidence, it was found that the gardens of the Aegean, primarily based in building complex courtyards, possess a more 'natural' and less structured appearance than the gardens of the aforementioned contemporary cultures. After an analysis of the current state of garden study in the Aegean, the thesis outlines an approach to future garden excavations.

BIOGRAPHICAL SKETCH

Jordana Wolf, raised in Orinda, California, graduated in 2004 from Phillips Academy, Andover. That autumn, she matriculated at Wesleyan University. While an undergraduate, Jordana spent summers studying Latin at UC Berkeley, and studying ancient sites in Greece with the College Year in Athens program; during her Junior spring semester she studied Classical languages, history, and archaeology at the Intercollegiate Center for Classical Studies in Rome. She graduated with honors as a double-major in Classics and Archaeology in 2008.

She was admitted to the Cornell Master's program in Archaeology in the fall of 2009, where she focused on bringing together her primary archaeological interests- gardens and the Aegean Bronze Age.

After she graduates in May 2012, Jordana plans to begin a teaching fellowship at a New England boarding school, and earn a Master's in Teaching from the University of Pennsylvania.

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Chapter 1 Introduction

-Show me your garden and I shall tell you what you are.

Alfred Austin

The ‘Aegean garden’ holds an unusual place in the history of gardens. Unlike its contemporaries in Egypt and the Near East, there is little physical or artistic evidence from Bronze Age Aegean sites acknowledged as specifically garden related, no specific garden sites known, and no literary evidence. This makes it extraordinarily difficult to precisely define what the components of an ‘Aegean garden’ are, what such a garden would look like or contain, or where it would be located. The only evidence of the gardens that is known at this point, like planting pots, wall paintings, and seals with religious imagery, are often not acknowledged as necessarily garden related. When they are, they create an image that does not resemble the idea of ‘garden’ that people envision. This thesis intends to challenge that idea, expanding the current definition of ‘garden,’ and, through an analysis of the available evidence, it will demonstrate that Aegean gardens did exist, and that their unique form was a reflection of Aegean culture and environment.

The Etymological Definition of ‘Garden’

Etymologically, the current English word ‘garden’ originated in the Indo-European words *gher* and *ghort*, meaning, respectively, ‘fence’ and ‘enclosure’. Eventually, those words developed into the Old English word *geard*, meaning ‘fence’. *Geard*, in turn, became both the word garden and the word yard.¹ The Latin word *hortus*, also meaning

¹ Van Erp-Houtepen, Anne. “The Etymological Origin of the Garden.” *Journal of Garden History*. 3. 1986. 227.

garden, comes from the same word-family, and eventually became the word “court”, as a compound of ‘*com*’ and ‘*hort*’.² Thus a courtyard is doubly bounded.

‘Park’ possesses similar etymological origins. The Old English *pearroc* translates as ‘enclosure,’ and the Gallo-Roman word *parricus* as ‘fence.’ In addition, the word paradise, descended from the Persian word applied to Near Eastern parks (transliterated as *pairidaeza*) comes from the words *pairi*, meaning ‘around,’ and *daeza*, ‘wall’.³ The word is later adopted into Hebrew, becoming *perdes*- park or preserve.⁴

In Sumerian mythology, a hero takes the stones of a wild place known as a *kur*, to which all of the fresh water has been diverted, and piles them to form a dam, or wall. Blocked by this wall, the water flows back to civilization, where it can be used for irrigation.⁵ The hero has turned a wild, uncultivated place into a walled area of tame fertility. One of the Sumerian words for garden or park is *kirimah*, which comes from the word *kiri*, meaning date plantation or orchard.⁶ The word *kiri* is phonetically quite close to *kur*, indicating a possible relationship. Additionally, phonetic relationships can be seen between *kiri/kirimah* and the Hebrew verb *khr* (to dig). *Khr* is the root from which the words *kar*, *karmel*, *kerem*, originate. These words mean enclosed pasture, plantation, and vineyard respectively. Thus there is an evolution of meaning in this word family from wilderness to cultivation.⁷

² Van Erp-Houtepen. 1986. 228.

³ Van Erp-Houtepen. 1986. 229.

⁴ Brown, Francis; Driver, S.R.; Briggs, Charles. *A Hebrew and English Lexicon of the Old Testament: With an Appendix Containing the Biblical Aramaic*. Houghton Mifflin Company. Boston. 1907. 825.

⁵ Karahashi, Fumi. “Fighting the Mountain: Some Observations on the Sumerian Myths of Inanna and Ninurta.” *Journal of Near Eastern Studies*. 63:2. April 2004. 112.

⁶ The Pennsylvania Sumerian Dictionary. <http://psd.museum.upenn.edu/epsd/nepsd-frame.html>. 2/11/12.

⁷ Von Stackelberg, Katharine T. “Eastward in Eden: The Pre-Classical Roots of Meaning in Mediterranean Gardens.” In Volume 1: *Antiquity*, ed. Kathryn Gleason, of *A Cultural History of Gardens* (6 vols). eds. Michael Leslie and John Dixon Hunt. Berg Publishers. London (in press.). 2012.

It is thus clear that the words in English that refer to gardens originated as words meaning fence or enclosure, and that therefore such a fence or enclosure is integral to the garden. In addition, the land has to be cultivated, for without cultivation, without alteration by human hand, it is simply land.

The Archaeological Definition of 'Garden'

Archaeological definitions play a significant role in expanding the meaning of 'garden.' In a recent article by Phillip Betancourt, he uses a specific site, the Chrysokamino-Chomatos farmstead on Crete, as a test case for non-elite land use on Bronze Age Crete. He designates a piece of land at a site that is flat, near water, and well-manured as the likely garden site. It is near the residence, since gardens require regular tending,⁸ and there was some evidence of bounding around the garden space.⁹ According to Betancourt, it is a functional garden, used to grow edible or medicinal plants. It is the kind of kitchen garden that jumps to the minds of many when they hear the word 'garden.' Betancourt's case study involves a farmhouse situation, and for those purposes, the description of 'garden' he provides is adequate. 'Market gardens' of the sort found at such farmhouses usually possess the qualities he lays out in the article.

However, Betancourt's definition of the garden as a flat piece of land with easy water access, near the residence, does not describe all forms of garden. They are not all kitchen gardens, filled with rows of vegetables and herbs. Betancourt does not approach the idea of the garden as an art form, for example, or a place of immersion into another "place," mythological or theatrical. Elite gardens and functional kitchen gardens do not

⁸ Betancourt, Philip. "Recognition of Gardens and Fields in the Archaeological Record." *Stephanos Aristeios: archäologische Forschungen zwischen Nil und Istros : Festschrift für Stefan Hiller zum 65. Geburtstag*. Ed. Lang, Felix, Claus Reinholdt, and Jorg Weilharter. Phoibos. Vienna. 2007. 26.

⁹ Betancourt, Philip. 2007. 23, 25.

fulfill the same purpose, nor do they take the same form. Thus, the word ‘garden’ requires an even more complex, and broader definition than that provided by Betancourt’s analysis and by etymology. While gardens frequently do center on plant life, and many are created for functional purposes, many others center on landscape features such as mounds or water sources, and others possess little or no plant life at all, but use rocks or statues. The purposes of various types of gardens also vary widely, from pleasure gardens, to elite displays of power, to religious shrines, to food supply. Rock gardens, vegetable gardens, and flower gardens vary widely from each other in form and function, and yet they all fall into the category of what is now considered a garden. One must define them, then, not by their contents, or even their form and location, but by the fact that they are bounded and cultivated pieces of land,¹⁰ consciously created and maintained. A garden can be an exotic wilderness or a peaceful refuge, depending on form, content, and the intent of the creator. It is an expression of aesthetics and cultural values. Beyond that, a garden may also be, in many situations, an art form, especially, as this thesis argues, in the context of the Aegean garden.

The Aegean Garden and Its Origin

The Aegean garden possessed few of the traits seen in the traditional Western garden as described by Betancourt and as commonly imagined. The rock-cut pit garden at Phaistos,¹¹ for example, would have been strictly seasonal, appearing garden-like only during the blooming season of the bulbs arranged in the pits. Courtyard planting-pot gardens were not ‘soil-based,’ with seeds sprouting out of the ground, thus stretching the definition of garden still further. This thesis argues that the rock cut pit and plant pot

¹⁰ Miller, Naomi Frances and Gleason, Kathryn. *The Archaeology of Garden and Field*. University of Pennsylvania Press. Philadelphia. 1994. 2.

¹¹ Shaw, Maria. “The Aegean Garden.” *American Journal of Archaeology*. 97:4. 1993. 680-685.

gardens of the Aegean were nevertheless cultivated spaces, requiring us to set aside modern preconceptions of this art form and imagine anew. Moreover, to understand better these particular creations, a closer look at antecedent gardens is necessary.

By the period under discussion, between three and four thousand years ago, many Mediterranean societies, such as Egypt and the Near East, had already established garden styles. Those gardens had distinct structures, values, and forms of expression, and those qualities are now well understood from various forms of documentation (literary, artistic, and archaeological), available to scholars.¹² What is not so well understood is how the gardens of those cultures may have influenced the gardens of Aegean culture.

Interaction between the Near East and Egypt and the Aegean is documented in various areas of material culture, but comparing gardens in the Mediterranean poses both familiar and unique problems in cross-cultural studies. This thesis reviews the evidence and concludes that, while the Aegean gardeners may have borrowed certain practices or imported plants from those other places, they did not adopt the exact aesthetic expressions of design as those other cultures, at least judging from the little evidence that exists. Moreover, as products of an island environment, Aegean gardens would have had to be far more space- and water- conscious than gardens in other Mediterranean Bronze Age cultures and these environmental considerations may have dramatically influenced the evolution of gardens on the islands. Specifically, particular Aegean designs may have been based in part on the necessity for water conservation, as many of the islands did not

¹² For example, see:

Dalley, Stephanie. "Ancient Mesopotamian Gardens and the Identification of the Hanging Gardens of Babylon Resolved." *Garden History*. 21. 1. Summer, 1993. 1-13.
Foster, Karen Polinger. "The Earliest Zoos and Gardens." *Scientific American*. July 1999. 64-71.
Manniche, Lise. *An Ancient Egyptian Herbal*. University of Texas Press. Austin. 1989.
Oppenheim, A. Leo. "On Royal Gardens in Mesopotamia." *Journal of Near Eastern Studies*. 24:4. 1965. 328-333.
Wilkinson, Alix. "Symbolism and Design in Ancient Egyptian Gardens." *Garden History*. 22:1. Summer 1994. 1-17.
Wilkinson, Alix. *The Garden in Ancient Egypt*. London. Rubicon Press.
Wiseman, D.J. "Mesopotamian Gardens." *Anatolian Studies*. 33. 1983. 137-144.

offer expansive water sheds, nor were there centralized aqueducts and water systems, and on poor soil quality, so inhabitants relied on cisterns and created unique adaptations of their own for impressive displays, as well as more modest gardens.

This thesis argues that Aegean gardens, in common with gardens in other contexts, are part of value display (of water, wealth and aesthetics in a culturally recognized way). However, separate techniques for creating elite gardens would have arisen on the Aegean islands as compared to the mainland. While scarce water may have partially generated the plant-pot and pit gardens, the Aegean people appear, from artistic evidence, to have placed a high value on a specific group of plants, and the demands of these plants, together with the island architectural and ecological settings, may have dictated the aesthetics of display. Although the environment may have limited the construction of physical gardens, artistic depictions would not have been so limited. Even so, this evidence focuses on a limited repertoire of plants, animals, and settings, illuminating archaeological evidence. While some scholars argue for ‘Nilotic’ scenes as relevant in this discussion, none of the Minoan gardens reflect the character of Egyptian gardens as we know them, with their pools, canals, symmetrical pathways and straight rows of single species of trees. Thus, the aesthetic values held by the inhabitants of the Aegean islands may have been informed by objects and ideas from the Near East and Egypt, but did not replicate their appearance and character and, by implication, their meaning.

This thesis pulls together recent theories regarding Aegean Bronze Age gardens and examines the current state of knowledge, with a focus on Aegean gardens in their broader Mediterranean context. While it concludes that many questions remain difficult to

answer with any certainty, the thesis explores new techniques of archaeological investigation that may reward further inquiry in the coming years.

The chapters that follow will explore the idea of the Aegean Bronze Age garden from multiple perspectives, using many forms of evidence. The first two chapters will discuss the interaction of Aegean society with the ancient Near East and Egypt, and present an overview of the gardens of those contemporary cultures and how they may have contributed to the gardens of the Aegean. The next chapter will involve an analysis of the wall paintings of the Aegean Bronze Age sites and how they may be used to understand Aegean gardens; a presentation and discussion of the religious evidence for and purpose of gardens will follow. The next two chapters focus on the physical evidence of the Aegean garden, including a study of the possible locations of gardens at Aegean Bronze Age sites, and an examination of the presence and use of planting pots at Bronze Age sites. The thesis concludes with a discussion of the state of the question/evidence available, and sketches out approaches to the archaeological study and excavation of gardens that may advance any questions that remain, to date, unanswerable.

Chapter 2

Interactions Between the Aegean and the Eastern Mediterranean

In the century or so since Sir Arthur Evans' excavations at Knossos, there have been occasional attempts to explore the possible existence of Aegean gardens.¹³ These attempts have concentrated primarily on the configuration and make-up of the gardens themselves, and on the wall paintings and archaeological artifacts that may have indicated their existence. Although many researchers have studied how ideas regarding art may have been influenced by these interactions,¹⁴ few have explored the exchange of ideas between the Aegean and Egypt and the Near East in regards to plant life and garden design. The gardens of these other cultures have undergone extensive analysis through both material and textual culture. Alex Wilkinson, among others, has thoroughly addressed the subject of the form and content of the gardens of Egypt, and many scholars have written about the gardens of the Near East. This is frequently in the context of the Biblical Garden of Eden, the famous Hanging Gardens of Babylon, or in reference to the texts describing the imported plants and animals of the rulers of the kingdoms of Mesopotamia.¹⁵ With the dearth of direct evidence regarding Aegean garden practices, a more extensive study of the relationship between the Aegean region and these contemporary cultures in regards to garden cultivation would thus seem to have value.

¹³ Day, Jo. "Flower-Lovers? Reconsidering the Gardens of Minoan Crete." *The Archaeology of Crop Fields and Gardens*. ed. Jean-Paul Morel, Jordi Tresserras-Juan, and Juan Carlos Matamala. Edipuglia. Bari. 2006; Schafer, Jörg. "The Role of 'Gardens' in Minoan Civilisation." *Proceedings of an International Symposium on Civilizations of the Aegean and their Diffusion in Cyprus and the Eastern Mediterranean 2000-600 B.C..* ed. V. Karegeorghis. 1992. 85-87; Shaw, Maria. 1993. 661-685.

¹⁴ Bietak, Manfred. "Minoan Paintings in Avaris, Egypt." *The Wall-Paintings of Thera: Proceedings of the First International Symposium- Volume II*. Piraeus, Greece. The Thera Foundation. 1997. 33-42.

¹⁵ Crawford, Harriet. *Sumer and the Sumerians*. Cambridge University Press. Cambridge. 2004; Dalley, Stephanie. Summer, 1994. Wilkinson, Alix. Summer 1994. 1-17; Wilkinson, Alix. 1998; Wiseman, D.J. 1983; etc.

That trade interactions between the Aegean cultures and contemporary cultures in the Mediterranean occurred is no longer in question.¹⁶ What is still in question is the extent of the contact, the dynamics of the cultural interactions, and the effect of those interactions on the cultures involved.

The idea of ‘trade’ is a complex one, encompassing a number of different kinds of relationships and forms of transfers of materials and ideas. Trade is not simply an equal exchange of goods, since those goods are valued differently in different places and among different people. Value is a cultural construct, dependent upon such factors as sentimental value, use value, the labor that went into the construction of an item, and rarity. The majority of these factors are dependent upon the context in which the item is located. Goods that are fairly mundane at their place of origin can be exotic and therefore more valuable in the land to which they are imported.¹⁷

The movement of items from place to place need not be voluntary, as demonstrated by the use of tribute to acquire resources and goods, and the transfer of items through piracy and theft. Moreover, the transfer of materials can take place over a great distance, passing through many hands, with the final recipient of an object possessing little or no knowledge of its original context and value. In other situations the original owner can move with the object to its new environment, or the original owner can come into direct contact with the ultimate recipient, transferring context as well as material items. In these

¹⁶ See Casson, Lionel. *The Ancient Mariners: Seafarers and Seafighters of the Mediterranean in Ancient Times*. Princeton University Press. Princeton. 1991; Cline, Eric. *Sailing the Wine-Dark Sea: International Trade and the Bronze Age Aegean- British Archaeological Reports*. Tempus Reparatum. Oxford. 1994; Davies, W.V. and Schofield, L. *Egypt, the Aegean, and the Levant: Interconnections in the Second Millennium BC*. British Museum Press. London. 1995; Bietak, Manfred. *The Synchronization of Civilizations in the Eastern Mediterranean in the 2nd Millennium BC: proceedings of an international symposium at Schloss Haindorf, 15th-17th of November 1996 and at the Austrian Academy, Vienna, 11th-12th of May 1998*. Verlag der Österreichischen Akademie der Wissenschaften Vienna. 2000; for further information, see the bibliographies of the works cited here.

¹⁷ Bevan, Andrew. *Stone Vessels and Values in the Bronze Age*. Cambridge University Press. New York. 2007. 8-9.

cases the item retains more of its original meaning,¹⁸ and in this way ideas are also transmitted from one culture to another.

During the period under discussion- the first half of the second millennium BCE- cultural interactions and trade expanded considerably. In the Eastern Mediterranean, rulers of kingdoms including Egypt, Assyria, Babylon, and Cyprus had been constructing relationships and trade routes through a complicated series of alliances for hundreds of years already, often through marriage, and these relationships continued and became stronger in the early second millennium.¹⁹ As a whole, these alliances are referred to as the ‘Brotherhood of Kings.’

These rulers sent many letters to each other throughout the centuries, from which their relationships have been pieced together. One such series of letters, dubbed the ‘Amarna letters’ (being found at the Egyptian site of Amarna), was written in the 14th c. BCE, during the rule of Akhenaten, but other documents have been found in kingdoms like Ebla and Mari, from as early as 2300 BCE.²⁰ The letters contained discussions of family matters, requests for goods, and of problems that rulers were having with one another. They portrayed a politically complicated but vibrant trade system in the Mediterranean, in which interactions between the regions of the Eastern Mediterranean were increasingly common.²¹ It is likely that rulers on mainland Greece, then possibly known as Ahhiyawa, were among the more powerful leaders of the Eastern Mediterranean.²² Not only was the island of ‘*Keftiu*’- the Egyptian name for Crete- a central point along the trade routes from

¹⁸ Bevan, Andrew. 2007. 22.

¹⁹ Podany. *The Brotherhood of Kings: How International Relations Shaped the Ancient Near East*. Oxford University Press. Oxford. 2010. 101-107.

²⁰ Podany, Amanda. 2010. 27.

²¹ Knapp, Bernard. “Bronze Age Mediterranean Cultures and the Ancient Near East.” *The Biblical Archaeologist*. 55:2. June, 1992. 65.

²² Guterbock, Hans. “The Hittites and the Aegean World, Part 1: The Ahhiyawa Problem Reconsidered.” *American Journal of Archaeology*. 87:2. 1983. 135.

the Near East and Egypt to Greece, and therefore ideally located to benefit from these trade relationships,²³ but Crete's own resources and products, and the need of its inhabitants for materials like tin and gold, resources not found on the island, brought them into contact with these other regions.²⁴ There is considerable evidence that these interconnections strongly influenced the culture of the Aegean region.

That contact between the cultures existed during the Bronze Age is undeniable. Two catalogues, both published in 1994, detail considerable material evidence indicating interactions between the Aegean and the Eastern Mediterranean. One of these catalogues detailed materials imported from the Eastern Mediterranean to the Aegean,²⁵ and the other Mycenaean materials imported to Egypt and the Near East, both based on Late Bronze Age artifacts.²⁶ The extent of the vessels and other artifacts found to fit these categories effectively prove that the Eastern Mediterranean and the Aegean were interacting during the latter half of the second millennium BCE.

While the majority of extant objects traded between the Eastern Mediterranean and the Aegean date to the Late Bronze Age, it is clear from the evidence available that Eastern Mediterranean cultures and Aegean cultures interacted to some extent in the Middle and even Early Bronze Age. Aegean pottery, such as the Qubbet el-Hawa vase, appeared in Egypt by the earlier part of the 12th Dynasty, or between 1990 and 1890 BCE.²⁷ Minoan Kamares ware, most commonly found in religious contexts on Crete, has been found in Egyptian temples, palaces, tombs, and non-elite housing. The range of environments in

²³ Knapp, Bernard. June, 1992. 65.

²⁴ Podany, Amanda. 2010. 110.

²⁵ Cline, Eric. 1994.

²⁶ Leonard, A. Jr. *An index to the Late Bronze Age Aegean Pottery from Syria-Palestine: Studies in Mediterranean Archaeology* v. 114. Paul Åströms Förlag. Jönsered. 1994.

²⁷ Warren, Peter. "Minoan Crete and Pharaonic Egypt." *Egypt, the Aegean, and the Levant: Interconnections in the Second Millennium BC*. Ed. Davies, W.V. and Schofield, L. British Museum Press. London. 1995. 2.

which these vessels have been found indicates the ability for people in many socioeconomic categories to possess exotic, ‘internationalizing’ goods.²⁸ It also indicates a revaluation of the vessels, from ritual to a wider range of functions, possibly due to a lack of direct contact with the Minoan people, and thus a lack of knowledge of the original use of the vessels.²⁹ One site at which the Kamares ware vessels seem to have retained some of their original meaning is that of Tell el-Dab’a, where they have been recovered from ritual contexts. Tell el-Dab’a is thought to have been home to many foreign residents, as it was a trade hub, and Minoan traders and artisans may have passed through, or lived there. The presence of Minoans, and their knowledge of the original uses of the Kamares ware, may have influenced the use and value of the vessels at Tell el-Dab’a,³⁰ keeping their function closer to that of the original Minoan uses at that site than at other sites in Egypt.

Excavators have also found a significant amount of Egyptian material at Aegean sites. A hippopotamus tooth, probably from Egypt, was uncovered at Knossos and dates from approximately 2600 BCE, in the Early Bronze Age.³¹ Additional imported artifacts, such as faience beads and Egyptian scarabs, have been found at Early Minoan Bronze Age sites.³² While the extant evidence of interaction in the Early and Middle Bronze Age is significantly less prevalent than the evidence available to indicate interaction in the Late Bronze Age, earlier contact clearly existed.

It is clear that it was not only material objects that travelled between cultures. Artwork of the Middle and Late Bronze Age of both cultures reflects contact in the frequent similarities of technique and subject. Specifically, many postulate that the Akrotiri

²⁸ Barrett, Caitlin E. “The Perceived Value of Minoan and Minoanizing Pottery in Egypt.” *Journal of Mediterranean Archaeology*. 22:2. 2009. 213.

²⁹ Barrett, Caitlin E. 2009. 218-219.

³⁰ Barrett, Caitlin E. 2009. 219.

³¹ Warren, Peter. 1995. 1.

³² Warren, Peter. 1995. 2.

wall painting referred to as the East Frieze of the West House depicts a “Nilotic” scene.³³ On the Egyptian end, an Eighteenth Dynasty fortress at Avaris, also known as Tell el-Dab’a, possesses the remains of possibly Minoan-style frescoes.³⁴ These frescoes, while not necessarily created by Minoan artisans, show similarities of form, style, and technique reflective of Minoan artwork.

In addition to paintings with Minoan artistic characteristics, the depiction of Aegean people in Egyptian paintings is a strong indicator of contact. At the site of Tell el-Dab’a, images of the *Keftiu* appear in a number of paintings. It is possible that Tell el-Dab’a, located on the Nile Delta, served as the point of entry for mariners from the Aegean.³⁵ These *Keftiu* also appeared in a number of Theban tombs, the earliest of which was that of Senemut, an architect during the reign of Hatshepsut.³⁶

Artwork of the period also reflects the possible exchange of religious imagery and concepts. Images of palm trees found in Cycladic wall paintings are likely depicting the date palm, a species not native to the Cycladic islands.³⁷ It is, however, native to Egypt, where it was believed to be associated with the sun god, and therefore sacred,³⁸ and to the Near East, where the fruits of the palms were used as ritual offerings.³⁹ Another form of Egyptian religious imagery found in the Aegean was that of the Taweret genii. Taweret, the hippopotamus goddess of Egypt, was called upon as a protector of women and

³³ Immerwahr, Sara. *Aegean Paintings in the Bronze Age*. The Pennsylvania State University Press. University Park. 1990. 73.

³⁴ Bietak, Manfred. 1997. 36. Although the style is very reminiscent of Minoan paintings, the origin of the painters remains unknown. There has also been speculation that the paintings are not inspired by Aegean art at all, but rather by Near Eastern styles (Manning, Sturt and Hulin, Linda. “Maritime Commerce and Geographies of Mobility in the Late Bronze Age of the Eastern Mediterranean: Problematisations.” *The Archaeology of Mediterranean Prehistory*. ed. E. Blake and A.B. Knapp. Blackwell Publishing. Malden. 2005. 276.)

³⁵ Morgan, Lyvia. “Paintings, Harbors, and Intercultural Relations.” *Krinoi Kai Limenes*. Ed. Betancourt, P; Nelson, M; Williams, H. INSTAP Academic Press. Philadelphia. 2007. 123.

³⁶ Morgan, Lyvia. 2007. 123.

³⁷ See p. 37-38 in the chapter on Wall Paintings for a further discussion of the presence of palm species in the Aegean, including the native Cretan *Phoenix theophrasti*.

³⁸ Wilkinson, Alix. 1998. 2.

³⁹ Dalley, Stephanie. 1993. 1.

children.⁴⁰ Middle-Minoan period seals recovered from the Cretan sites of Knossos and Phaistos depict this goddess both in Egyptian and Minoan styles and environments. The seal from Knossos closely adheres to Egyptian imagery, including a background of Egyptian-seeming vegetation.⁴¹ The Phaistos seals, on the other hand, have been modified to more closely reflect Minoan artistic preferences. In both the Taweret figure carries an ewer with a high neck and a single handle, something not seen in Egyptian Taweret imagery,⁴² and the background of one of the seals more closely reflects a Minoan setting than an Egyptian.⁴³

The interaction of the Aegean cultures with other societies with which they were in contact is highly significant in a discussion of garden construction in the Aegean, as these cultures, in Egypt and the Near East, possessed clearly defined gardens, attested to in artwork, text, and archaeological data. The gardens of Egypt and the Near East of the Bronze Age were well documented, down to the species and locations of the plants. Texts from those cultures describing the uses of the plants, the locations of the gardens, and how the rulers and elite of the cultures used the gardens have been examined.⁴⁴ Similar evidence is not available for the Aegean region. What little evidence is available comes from a number of different areas of investigation, particularly wall paintings, religious artifacts, pottery, physical sites, and environmental remains, all of which will be discussed in succeeding chapters.

⁴⁰ Weingarten, Judith. "The Transformation of Egyptian Taweret into the Minoan Genius: A Study in Cultural Transmission in the Middle Bronze Age." *Studies in Mediterranean Archaeology*. 88. Paul Åströms Förlag. 1991. 4.

⁴¹ Weingarten, Judith. 1991. 6.

⁴² Weingarten, Judith. 1991. 7.

⁴³ Weingarten, Judith. 1991. 8.

⁴⁴ Dalley, Stephanie. 1993; Foster, Karen Polinger. 1999. 64-71; Oppenheim, A. Leo. 1965. 328-333; Wilkinson, Alix. 1994; Wilkinson, Alix. 1998; Wiseman, D.J. 1983. etc.

While the people of the Aegean region would have developed many aspects of their gardens independently of these other cultures, it is possible that they also adopted many features of foreign gardens. By studying gardens in Egypt and the Near East that are already understood to some extent, it may therefore become possible to better understand the gardens of the Aegean.

Chapter 3

An Overview of Egyptian and Near Eastern Gardens

Mediterranean archaeology has traditionally been focused on architecture and the landscape design closely associated with that architecture. Therefore, garden types set farther away from structures have not yet been fully explored, and are not particularly well documented or understood. Further excavation and research is clearly necessary to better understand them. Nevertheless, the artwork and literature that describes the gardens of the eastern Mediterranean, combined with the archaeological evidence that is available, makes it possible to draw some basic conclusions regarding the form and purpose of Egyptian and Near Eastern gardens.

In order to conduct an inquiry into Aegean gardens and how they drew upon or developed independently of the contemporary gardens of Egypt and the Near East, a basic description of those contemporary gardens is necessary, thus establishing a basis for comparison. The following discussion outlines the common types of Egyptian and Near Eastern gardens – their contents, forms, and purposes – and describes the role that gardens played in those societies.

The Egyptian Garden

Decorative gardens in Egypt tended to be of four main types – a venue for elite display, a religious location, a tomb or funerary garden, or courtyard augmentation.⁴⁵ In addition to these, there were gardens for more mundane purposes, where Egyptians grew vegetables or medicinal plants. However, it is upon the four types of formal, decorative gardens that this chapter focuses.

⁴⁵ Wilkinson, Alix. 1998. 4

Each of these four formal garden types possessed distinctive designs, content, and symbolic meaning based on their function. There is some overlap in these types, both in terms of design and purpose. For example, the gardens of the pharaonic palaces served as both religious and elite display, as religion was expressed in all gardens, and gardens that serve a primarily religious function may also be of a type we see today as being rather secular, as exemplified by the Festival Temple in Karnak, where Thutmosis III is credited with creating the first botanic garden.⁴⁶

The Egyptian garden culture was used to display plants, water, and art that indicated status and wealth both in life and in the afterlife. These elite display gardens were of a symmetrical design, and were usually walled, as the elite often imported animals as well as plants, and needed to create a place from which the animals could not escape. These gardens would be located on the approach to the house, so any visitor would know even before entering the residence that the owner was a person of wealth and taste.⁴⁷ Fishponds characteristically formed central features in these gardens, and are often depicted with lotus flowers floating on top, as in the tomb painting of a garden of the scribe Nebamun, who lived in the early 14th century BCE.⁴⁸ Trees also formed a vital part of these private ornamental gardens, as can be seen by the fact that about a hundred years before Nebamun, one of the builders for Thutmosis I provided a complete inventory of the trees he had in his garden. These included pomegranate, fig, carob, sycamore, and date and doum palms, the number of each carefully recorded on the walls of his tomb.⁴⁹

⁴⁶ Bigelow, Jane M.H. "Ancient Egyptian Gardens." *The Ostrakon*. Denver Museum of Natural History. Denver. 2000.

7.

⁴⁷ Wilkinson. 1998. 125.

⁴⁸ Manniche, Lise. 1989. 9.

⁴⁹ Manniche, Lise. 1989. 10.

A second type of garden was a religious or ritual garden, often built at locations already possessing ritual or mythological significance, in order to enhance or exhibit the power of the location.⁵⁰ The Egyptians would build temples upon these sacred sites, and the gardens at the temples would take a specific form to enhance the meaning, symbolism, or significance of that site, which typically was the location of a god's death or notable task.

These temple gardens of ancient Egypt always possessed some form of stream or pond, representing the god Nun, who was the water from the beginning of the world. The gardens were also filled with plants of religious significance, such as the doum palm, sacred to the god Thoth and the goddess Min, and the date palm, sacred to the sun god Re.⁵¹ In addition to these trees, fragrant flowers and herbs would be planted, since they were required for feasts and ceremonies. In fact, supplying bouquets for the gods was for all intents and purposes an industry unto itself, to the point that, during the reign of Amenophis III, c. 1475 BCE, a man named Nakht possessed the title of "gardener of the divine offerings of Amun."⁵² The paintings on his tomb walls, before being destroyed by over-exposure to the elements and tourists, depicted both elaborate bouquets and the man himself wandering among the plant nursery for the temple.⁵³ The priests of the temple would also cultivate various vegetables and fruit trees, from which they gathered offerings for the god as well as food for themselves.⁵⁴

As for the design of the temple gardens, these were laid out symmetrically on the approaches to the temple, much like those of elite residences, or as shall be seen shortly,

⁵⁰ Wilkinson, Alix. 1994. 2.

⁵¹ Wilkinson, Alix. 1994. 2-3.

⁵² Manniche, Lise. 1989. 17.

⁵³ Manniche, Lise. 1989. 17.

⁵⁴ Wilkinson, Alix. 1998. 119.

the tombs of the powerful and wealthy. The gardens of the palaces played a role as both religious and hierarchical symbols, as the pharaohs were themselves deities, and so their abodes were sacred.⁵⁵ Because the gardens of the palaces served essentially the same purpose as the gardens of the cult temples, they took the same form. The temple building or palace would serve as the central point of the garden, with the garden constructed axially around it.

A third type of garden, the tomb and funerary temple garden, is well represented in both paintings and the archaeological record.⁵⁶ Tomb gardens were focused not around a building, but around a mound or hill representing the tomb of Osiris. Planted axially around the hill/tomb were various religiously significant trees; many of which, like the doum and date palm, were also present in the temple gardens. Like the temple gardens, the funerary temples served as a display of the power and wealth of the one to whom the temple was dedicated. The mortuary temple of Mentuhotep, who reigned in the 20th century BCE, possessed three rows of seven trees, sycamore and tamarisk, running along the approaches to the temple. This design is evidenced not only by the plan of the garden, inscribed into one of the floor slabs in the structure, but also by the unearthed tree pits themselves. Similar tree pit evidence is available at other monuments as well, such as the pyramid of Sesostri II.⁵⁷ These gardens also incorporated water as a central feature, through the creation of symmetrically located ponds within the garden,⁵⁸ which were usually either rectangular or t-shaped.⁵⁹

⁵⁵ Wilkinson, Alix. 1994. 2.

⁵⁶ Wilkinson, Alix. 1994. 2.

⁵⁷ Manniche, Lise. 1989. 14.

⁵⁸ Wilkinson, Alix. 1994. 6.

⁵⁹ Wilkinson, Alix. 1994. 8.

The final garden form was that of a courtyard garden, existing within the courtyards of palaces, among other places. These seem to have been relatively simple creations, with small pools of water, trees, potted plants, and possibly small shelters. What the plants in these courtyards were and whether they were planted with religious symbolism in mind is largely unknown. However, the sole Egyptian diorama thus far discovered (Figure 1) depicts a courtyard containing a rectangular pool lined in copper surrounded by lines of 'trees' made of wood, with individual leaves attached, representing the sycamore-fig,⁶⁰ which was sacred to the sky-goddess.⁶¹ At the back of the construction part of a building appears, with two rows of columns supporting a roof with rain-spouts jutting out. This diorama, found in the tomb of a high-ranking official, dates to approximately 2010 BCE, and shows one possible courtyard garden design.⁶²



Figure 1. Diorama of Egyptian Courtyard Garden
(after Foster, Karen Polinger. 1999. 67.)

⁶⁰ Foster, Karen Polinger. 1999. 67.

⁶¹ Wilkinson, Alix. 1994. 3.

⁶² Foster, Karen Polinger. 1999. 67.

Many of the trees in these gardens were planted in pots, as evidenced by the presence of planting pots at many of the excavated garden sites, specifically Tell Dab'a, Tanis, and Amarna.⁶³ These planting pots are significant, as they relate to the possible structure of Aegean gardens. Planting pots can be used for a number of purposes, the most significant of which, in the climate of the Eastern Mediterranean, is that planting in pots means less water need be used. In Egypt, the Nile could be used for irrigation purposes, and frequently was, but some areas were too far from the Nile for such irrigation to be feasible, and planting pots allowed a more concentrated use of water than planting in the earth. Such an approach would have been even more useful in the Aegean islands, where there were few sources of fresh water other than the rain. The use of planting pots in Aegean gardens will be examined further in a later chapter.

It is important to stress the significance of symmetry, geometric design, and water features in the ancient Egyptian elite gardens. Although the different types of Egyptian garden each had their own appearance, dictated by tradition and purpose, they all shared these central qualities, all possessed straight lines of trees and central, often rectilinear, water features; therefore it is those qualities more than any others that must be used to identify an 'Egyptian' garden.

The Near Eastern Garden

The ancient Mesopotamian cultures are well known for their gardens, although the information available regarding them is neither as plentiful nor as detailed as the information for the gardens of Egypt. Some of the most famous gardens in the world, real and mythological, existed in the Near East, such as the Hanging Gardens of Babylon and the Garden of Eden. While the Hanging Gardens of Babylon were created a few centuries

⁶³ Wilkinson, Alix. 1998. 26.

later than the period under discussion (around 700 BCE), and the Garden of Eden is a largely mythological concept, there are numerous texts dating back to at least 2000 BCE that refer to the earliest known gardens, which are clearly relevant for this discussion.

The typology of Near Eastern gardens is not as clear as that of Egyptian gardens. However, while the gardens of the Near East, like those of Egypt, frequently overlap in terms of purpose, there are at least two distinct forms of garden known from extant Near Eastern texts. One of these is the courtyard garden, which can take on either religious or hierarchical significance, or both. The other is the ‘park’ form, created almost exclusively for elite display purposes.

In Mesopotamia, the garden developed of necessity as an urban phenomenon. Any garden cultivated in the open was the target of wild and domesticated pigs,⁶⁴ as well as other wild animals, which dug the earth around the plants or ate the plants themselves. In addition, rivers overflowed their banks, often unexpectedly flooding the gardens, and human enemies also posed a threat. Thus, the safest place for a garden was within the city walls, where the earth had been raised to form a mound that would not be affected by floods, and where walls prevented both wild animals and marauding humans from attacking the garden. Therefore, gardens were created in protected courtyards, such as the one in the courtyard at the palace at Mari, dated to around 1800 BCE. Baked brick or terracotta walkways were set across these courtyards to raise those who walked the gardens above the dust and mud.⁶⁵

⁶⁴ Pigs, more than other species, are particularly inclined to dig at the bases of trees and other plants, a practice called ‘rooting’ or ‘grubbing,’ which harms or kills the plants. Wild pigs and boars have also been known to kill and eat smaller animals, which would include many of the exotic animal species imported to the Near East. See: <http://icwdm.org/handbook/mammals/wildpigs.asp>. 4/21/12.

⁶⁵ Dalley, Stephanie. 1993. 2.

Archaeologists have been able to determine the garden designs at a number of these sites through the study of excavated root cavities. In a palace dating to c. 1400 BCE at Ugarit on the coast of Syria, excavators uncovered a courtyard garden with an off-center stone water basin. The edges of the courtyard produced evidence of loose earth, suggesting that plants may have been placed in soil along the walls of the courtyard.⁶⁶ Textual evidence suggests that these courtyards were filled with plants possessing religious associations, like the palm, and many aromatic plants used for religious ceremonies. Many of the ancient Mesopotamian courtyards were decorated with date palm-trunk semi-engaged columns.⁶⁷ Royal tombs were occasionally located immediately below these courtyards, and sacrifices were offered there to Resheph, a god of the underworld.⁶⁸

Multiple texts from Mesopotamia recount the locations and design of another form of royal garden, described as “parks,”⁶⁹ which were large swathes of land filled with aromatic plants and fruit trees, as well as grape vines, and exotic imported species.⁷⁰ They often served as hunting parks in which exotic imported animals would be kept. These large, natural appearing parks seem to have been a common design for the gardens of Mesopotamia and the Near East. Writings from the reign of Nebuchadnezzar of Babylon, in the early sixth century BCE, state that the king constructed a park that he filled with stones, to look like mountains, and planted mountain trees, to make his mountain-born wife feel more at home.⁷¹ Earlier kings, such as Assurnasirpal, who reigned over Assyria approximately three centuries earlier, constructed similar ‘natural’ parks. In one of his own accounts, Assurnasirpal declares that he “planted seeds and plants that [he] had found

⁶⁶ Dalley, Stephanie. 1993. 2.

⁶⁷ Dalley, Stephanie. 1993. 8.

⁶⁸ Dalley, Stephanie. 1993. 3.

⁶⁹ Wiseman, D.J. 1983. 138.

⁷⁰ Wiseman, D.J. 1983. 138.

⁷¹ Oppenheim, A. Leo. 1965. 332.

in the countries through which [he] had marched and in the highlands which [he] had crossed: pines of different kinds, cypresses and junipers of different kinds, almonds, dates, ebony, rosewood, olive, oak, tamarisk, walnut, terebinth and ash, fir, pomegranate, pear, quince, fig, grapevine...⁷² Tiglath-Pileser, who reigned over Assyria in the 11th century BCE, and expanded its territory to the shores of the Mediterranean, collected animals and trees from all his conquered territories and imported them to parks and orchards near his palace. While all of these kings much later than period in question- that is, the period before the eruption of Thera- there is considerable evidence that this practice had gone on for centuries before their reigns.⁷³

Dating as early as 2000 BCE, an inscription on clay tablets in cuneiform tells the story about two trees, a tamarisk and a date palm, arguing over which of them is more important to the king. They relate the many uses to which their wood and fruit are put by the king and in religious practices. The date palm argues that its fruit is eaten by royalty, and serve as offerings during religious rituals. The tamarisk states that the furniture of the royal family, and the temples are full of objects made of tamarisk. People work and eat in the shade of both.⁷⁴ This Babylonian text demonstrates not only the uses to which the trees were put, but also their centrality to the culture and the garden.

Judging by these texts, and others like them, the predominant emphasis in these gardens is on trees rather than water. More recent Near Eastern mythology seems to support that idea as well, judging from the emphasis on the Tree of Life and the Tree of Knowledge in the religious texts of Judaism, Islam, and Christianity, all originating in the

⁷² Dalley, Stephanie. 1993. 4.

⁷³ Dalley, Stephanie. 1993. 4.

⁷⁴ Dalley, Stephanie. 1993. 1.

Near East. Few species of trees grew naturally in what is now central and southern Iraq and therefore their value was quite high, and they would have been displayed in prominent places as symbols of power or wealth.⁷⁵

One possible such place was around religious buildings, such as the Festival Hall of Assur (Figure 2). Ruling at the beginning of the 7th century BCE, Sennacherib, king of Assyria, was known more for building than for war; it may well have been he for whom the Hanging Gardens were built, and it was by his order that the Festival Hall came to be. All around the Hall, pits up to a meter-and-a-half deep are still visible today, dug directly into the rock. These pits were filled with trees, and water ran between the rows of pits in specially constructed channels, with the entire system covering around 16,000 square meters.⁷⁶

The use of trees as symbols of power, and the relationship between gardens and rulers, although present in Egypt, seems to have been particularly strong in the Near East. The king Sargon the Great, according to various traditions, was either the son of a gardener or a gardener himself before he became king, and there are at least two other stories of gardeners becoming kings of Mesopotamian kingdoms.⁷⁷ Cyrus the Younger, a Persian prince who lived in the late 400s CE, is anecdotally reported to have planned his gardens himself, designing them with straight lines and right angles, all of the trees spaced evenly apart, and to have planted many of the trees with his own hands.⁷⁸ This use of straight

⁷⁵ Dalley, Stephanie. 1993. 1-2.

⁷⁶ Gothein, Marie-Luise. *The History of Garden Art*. ed. Wright, Walter P. trans. Mrs. Archer-Hind. Hacker Art Books. New York. 1979. 32-33.

⁷⁷ Drews, Robert. "Sargon, Cyrus, and Mesopotamian Folk History." *Journal of Near Eastern Studies*. 31.4. October, 1974. 389-390.

⁷⁸ Xenophon. *Economics*. <http://perseus.uchicago.edu/perseus-cgi/citequery3.pl?dbname=GreekTexts&getid=0&query=Xen.%20Oec.%201.1>. 3/17/12

lines and symmetry can also be seen archaeologically at the site of Pasargadae, where straight stone water channels dictated the design of the garden.⁷⁹

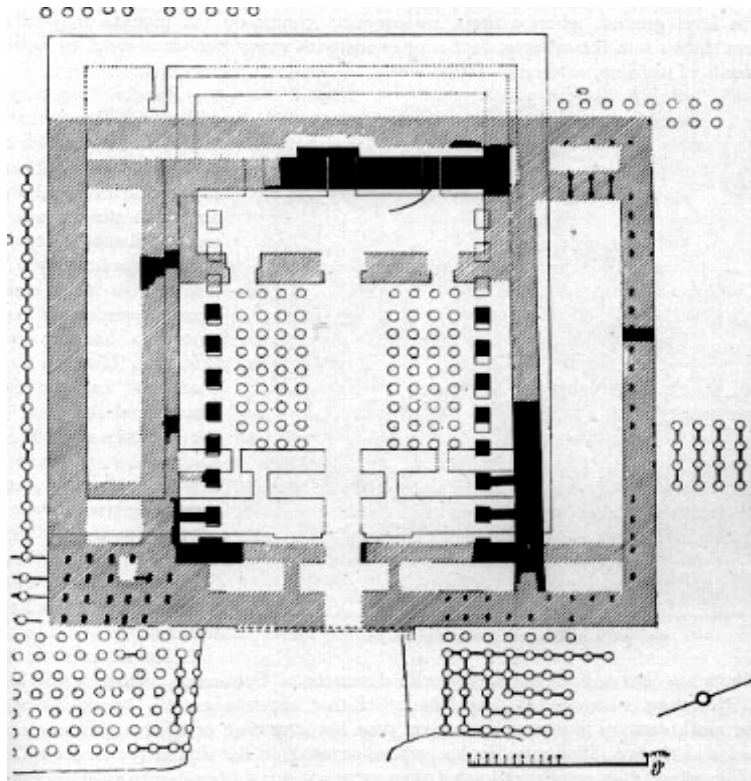


Figure 2. The Banqueting Hall of Sennacherib at Assur
(after Gothein, Marie-Luise. 1979. Fig. 30)

While symmetry and geometry were not as key to the Near Eastern gardens as to the Egyptian, not being a trait central to all Near Eastern gardens, it is clear from this example that they were likely still valued characteristics of garden design.

These characteristics of the Near Eastern gardens contrast in many ways with those of the Egyptian gardens. Differences such as the centrality of trees as in the Near East rather than water as in Egypt, the stronger emphasis on symmetry in the Egyptian gardens than in the Near Eastern, and the use of different designs and plants to express the aesthetic

⁷⁹ Stronach, David. *Pasargadae: a report on the excavations conducted by the British Institute of Persian Studies from 1961 to 1963*. Clarendon Press. Oxford. 1978. 107.

and symbolic qualities of the cultures show two distinct garden cultures. However, the gardens of the two regions did share a number of central qualities.

One significant practice, present in both regions, was the use of gardens in religious contexts. The products of the gardens, as related in the story of the tamarisk and the date palm, played a central role in rituals in the Near East, and in Egypt priests would often plant gardens to produce fruit and vegetables for offerings. In both regions, the gardens themselves often served as the site of those rituals, or were planted around the temples. Related to this, gardens were often associated with death, as they marked tombs in both the Near East and Egypt.

Another commonality was the importation of exotic species. As evidenced in the Egyptian inscription referencing Hatshepsut's Punt expedition and in the account left by Assurnasirpal, higher status inhabitants of both regions obtained and displayed exotic plant species in their gardens. To protect these valuable objects, and the contents of more mundane gardens as well, inhabitants of both regions placed gardens in protected areas, either building walls around the gardens, or placing the gardens in already walled areas, like courtyards.

The inhabitants of the Aegean islands and of Crete would likely have become aware of the purposes and forms of gardens in the Near East and Egypt through trade, as discussed in the previous chapter. However, despite interaction with these other cultures, and importation of foreign ideas and materials to the Aegean, the people of the Aegean clearly developed and maintained gardens distinct from, albeit impacted by, those of the Near East and Egypt in form and purpose. Whether that was due to environmental

restrictions, differences in religious or cultural perspectives, or other factors will be discussed in the following chapters.

Chapter 4

Wall Paintings

The wall paintings of the ancient Minoan and Cycladic cultures of the Aegean region provide a key source of evidence in the exploration of the Aegean Bronze Age garden. The study of wall paintings and how they relate to garden design has been undertaken by a number of people over the past few decades, and not just for Aegean culture.⁸⁰ While the paintings are never mirror images of how the gardens would have appeared, it is clear that the two are not unrelated. Not only do many of them represent landscapes and species likely present only in the Aegean, but they also depict some landscape concepts and species originating in the Eastern Mediterranean. These images may provide unique information regarding both the form and content of Aegean gardens and the impact that other cultures had on those gardens.

It has been argued that Bronze Age wall paintings may be essentially free of symbols, and that too much emphasis has been placed on the possible religious nature of the imagery. Carl Knappett, along with Christos Doumas, argues that the wall paintings should be seen first and foremost as archaeological artifacts. He suggests that scholars have been too absorbed in the iconographic interpretations of the paintings.⁸¹ Painting need not have been a solely religious or ritual activity, concerned only with symbolism. While some images may possess great depths of symbolic meaning, it is also likely that

⁸⁰ Day, Jo. "Crocuses in Context: A Diachronic Survey of the Crocus Motif in the Aegean Bronze Age." *Hesperia: The Journal of the American School of Classical Studies at Athens*. 3. 2011. 337-379; Gleason, Kathryn. Personal Communication. April, 2012; Kuttner, Ann. "Looking outside inside: ancient Roman garden rooms." *Studies in the History of Gardens and Designed Landscapes*. Special issue: *The Immediate Garden and the Larger Landscape*. 19:1. ed. Hunt, J. Dixon. 1999. 7-35; Sarpaki, Anaya. "Plants Chosen to be Depicted on Thera Wall Paintings: Tentative Interpretations." *The Wall-Paintings of Thera: Proceedings of the First International Symposium*- Volume II. The Thera Foundation. Piraeus, Greece. 1997. 657-680; Shaw, Maria. 1993. 661-685; Etc.

⁸¹ Knappett, Carl. "Seeing is Believing: the False Privilege of Images." *Cambridge Archaeological Journal*. 12:1. 2002. 159.

many are merely decorative, or represent aspects of daily life in the Aegean. For example, the “Fisherman”⁸² image from Akrotiri of a boy holding a dozen dolphinfish may not be a depiction of some sort of coming-of-age ritual as has been suggested in the past. Even Knappett, through his quotation of Mylona, admits that it probably evoked thoughts of “fishing” in the minds of the viewers. He states that the depiction of the dolphinfish, whose bones have not been discovered on site, may even represent a special catch of some sort.⁸³

However, although many of the paintings may be depictions of secular life and activities, others are full of religious meaning, as evidenced by the presence of such fantastic creatures as griffins and anthropomorphized monkeys.⁸⁴ These creatures have been associated with Minoan religion by dint of their exotic and mythological nature. The presence of such ‘unreal’ beings creates an ‘unreal’ place, a place in which deities exist.⁸⁵ Within the broader context of Near Eastern and Egyptian art, animals are frequently depicted in association with deities. For example, many of the deities of Egypt, such as Anubis or Sekhmet, possessed animal features or characteristics. This connection of the exotic to the divine, and the animal to the god, can clearly be seen in paintings like the ‘Mistress of Animals’ fresco in Xeste 3 (Figure 3), in which a monkey makes an offering of crocuses to a seated woman, likely a goddess, who is flanked by a griffin.⁸⁶

⁸² Doulas, Christos. *The Wall-Paintings of Thera*. trans. Alex Doulas. The Thera Foundation. Athens. 1992. 47, Pl. 19.

⁸³ Knappett, Carl. 2002. 159.

⁸⁴ Doulas, Christos. 1992. 130-131, Pl. 122.

⁸⁵ Immerwahr, Sara. 1990. 62.

⁸⁶ Doulas, Christos. 1992. 130-131, Pl. 122.



Figure 3. Mistress of Animals Fresco (after the Thera Foundation Wall Painting Exhibition)

While it is possible that paintings of native flora and fauna like the ‘Spring Fresco’, devoid of exotic creatures and deities, are not strictly religious, they likely express a spiritual connection with nature and thus with the nature goddess depicted in many wall paintings and seals.⁸⁷ This association of nature and religion can be seen not only in the Aegean, but in the Near East and Egypt as well, in the context of temple and tomb gardens.

Whatever their significance, religious or secular, many of the paintings show aspects of nature in the Aegean, from geological formations to flora and fauna, and can be used to draw conclusions about the gardens of the Bronze Age Aegean. In support of this

⁸⁷ Immerwahr, Sara. 1990. 46.

idea are arguments derived from the study of Roman and Etruscan “garden paintings.” Recently, some scholars engaged in the analysis of such paintings, including Kathryn Gleason, have come to the conclusion that in addition to depicting plant species that were actually used in Roman gardens, some of them may in fact closely reflect the form of those gardens, including the use of plants of increasing height to create a layered effect, and decorative fencing, both of which can be seen in paintings like that of the garden room of the Villa of Livia.⁸⁸ Gleason reached this conclusion through excavation of a garden site at Stabia that revealed planting beds that would have produced the same appearance.⁸⁹ While the artists took license with the paintings, showing flowers blooming simultaneously that in reality bloom at different times, many of the plant species and landscaping characteristics in the paintings are recognizable from Roman literature and archaeological evidence. In a similar situation, a painting in the “House of Frescoes” at Knossos shows autumn-blooming crocuses and spring-blooming lilies, both of which existed on Crete, in the same scene.⁹⁰ While the culture and artistic styles of imperial Rome are clearly very different from those of the Bronze Age Aegean, such comparisons must be taken into consideration, albeit cautiously.

On occasion, scholars have interpreted the subject of certain Aegean paintings as quite realistic. The scene in the ‘Miniature’ or ‘Flotilla’ Fresco,⁹¹ located in the West House of Akrotiri, has been subject to such ‘realistic’ interpretations for years, and is sometimes seen as the return of ships from a journey to a settlement frequently believed to

⁸⁸ Gleason, Kathryn. Personal Communication. Spring, 2010.

Kellum, Barbara. “The Construction of Landscape in Augustan Rome: The Garden Room at the Villa ad Gallinas.” *The Art Bulletin*. 76. 1994. 211-224.

Kuttner, Ann. 1999. 8.

⁸⁹ Gleason, Kathryn. Personal Communication. April, 2012.

⁹⁰ Negbi, Ora. “Domestication of Ornamental and Aromatic Plants in the Aegean: The Case of the Madonna Lily.” *The Wall-Paintings of Thera: Proceedings of the First International Symposium*- Volume II. The Thera Foundation. Piraeus, Greece . 1997. 598.

⁹¹ Dumas, Christos. 1992. Pl. 35.

be Akrotiri.⁹² By interpreting the image as a representation of a specific type of event, and proposing that the event took place at a real geographic location, scholars have attributed to this painting a level of reality that is not often accepted for other Aegean paintings. If such a realistic interpretation can be considered for this fresco, the idea of a similar type of interpretation must at least be entertained for other Aegean frescoes.

While the images of griffins and anthropomorphized monkeys may give the paintings an air of the “other,” there are just as many scenes- of lilies sitting in vases, of a boy holding the fish he has caught, of swallows in flight- that could well be reflective of life in the Aegean. It is from this ‘realistic’ imagery that we may glean evidence regarding the form and content of gardens in the cultures of the Bronze Age Aegean.

Many of the features of the paintings are clearly imported from outside the Aegean, particularly from the Near East and Egypt. One such image in the paintings is the blue monkey. Blue monkeys appear in numerous wall paintings in the Aegean, most notably in the “Monkey Fresco”⁹³ (Figure 4) in Sector B at Akrotiri, where a number of monkeys clamber upon boulders in a rocky landscape. There is also the figure of a monkey next to the goddess figure adjacent to the “Mistress of Animals” in Xeste 3, and the blue monkey in a harness painted on a wall in Knossos, in a painting known as “The Saffron-Gatherer.”⁹⁴ (Figure 5)

⁹² For further information on the interpretation of the “Flotilla Fresco” please see: Strasser, Thomas. “Location and Perspective in the Thera Flotilla Fresco.” *Journal of Mediterranean Archaeology*. 23:1. 2010. 3-26.

Doumas, Christos. “Akrotiri, Thera: some additional notes on its plan and architecture.” *Krinoi kai Limenes: Studies in Honor of Joseph and Maria Shaw*. ed. Betancourt, P; Nelson, M; Williams, H. INSTAP Academic Press. Philadelphia. 2007. 85-92.

⁹³ Immerwahr, Sara. 1990. Pls. 12-13.

⁹⁴ Doumas, Christos. 1992. 110-111, Pl. 85-90.



Figure 4. Monkey Fresco
(after Thera Foundation Wall Painting Exhibition)



Figure 5. Knossos Saffron Gatherer
(after The Archaeological Museum of Heraklion: The Exhibition)

Christos Doumas has argued that the monkey is a Vervet, a species native to Ethiopia.⁹⁵ Others have made the argument that the represented monkey is the Diademed, a member of the *Cercopithecidae* genus and family of monkeys, known as guenons. Eric Cline, in an article discussing depictions of monkeys in artwork found at Mycenaean sites, states that the species is likely in guenon family of monkeys, specifically either the Grivet or the Green Monkey. Although the fur of these monkeys is usually green, their skin is often blue, and the guenon is known to have been imported to New Kingdom Egypt.⁹⁶ Marco Masseti and Emiliano Bruner also believe that the species depicted is the Grivet, as they exhibit “the unmistakable morphological patterns” of that particular species.⁹⁷ The Vervet also belongs to the family *Cercopithecidae*, although in the genus *Chlorocebus*. However, the Vervet, Diademed, Grivet, and Green monkeys species bear considerable resemblance to each other, all of them under twenty pounds in weight and appearing as either blue, blue-green, or gray. In addition, they are all found throughout Eastern Africa,⁹⁸ and any of them could have been imported to Egypt. Therefore, it is possible that inhabitants of the Aegean may have encountered any or all of them.

There is considerable evidence of the presence of the blue monkey in both Egypt and the Near East. In the Brooklyn Museum collection, there is a glazed faience figure of a seated blue monkey holding an apple, reportedly discovered at El Amarna. In antiquity, it seems to have worn an earring, marking the creature as a pet.⁹⁹ There is also an image of a

⁹⁵ Doumas, Christos. Santorini, *A Guide to the Island and its Archaeological Treasures*. Ekdotike Athenon S.A. Athens. 1995. 60.

⁹⁶ Cline, Eric. “Monkey Business in the Bronze Age Aegean: The Amenhotep II Faience Figurines at Mycenae and Tiryns.” *The Annual of the British School at Athens*. 86. 1991. 31.

⁹⁷ Masseti, Marco and Bruner, Emiliano. “The Primates of the Western Palaearctic: a biogeographical, historical, and archaeozoological review.” *Journal of Anthropological Sciences*. 87. 2009. 61.

⁹⁸ Animal Diversity Web. “*Cercopithecus mitis*.”

http://animaldiversity.ummz.umich.edu/site/accounts/pictures/Cercopithecus_mitis.html, 5/10/10.

-Vervet Monkey Foundation. http://www.vervet.za.org/vervets/vervet_home.asp, 5/10/10.

⁹⁹ Brooklyn Museum Website, <http://www.brooklynmuseum.org/opencollection/objects/3524/>, 5/22/10.

monkey in Hatshepsut's Punt Frieze,¹⁰⁰ and depictions of monkeys on the walls of Court D of the Northwest Palace at Nimrud, wherein the monkeys are being carried or led on leashes in a procession toward the king. The animals were apparently exotic, since the images are somewhat awkward and stress the "strange" features of the monkey, like the large heads and bent posture.¹⁰¹ These depictions throughout the eastern Mediterranean show that the blue monkeys had enormous value as exotic symbols.

The realistic depictions of the animal in Aegean artwork have led many to believe that the monkeys had been imported to, and therefore existed on, Santorini and Crete. The importation of exotic species of animals in the Bronze Age Mediterranean is well documented, as the trading voyages of Hatshepsut and Thutmoses III to Punt, among others, have demonstrated.¹⁰² The key piece of evidence from Deir el-Bahri is a relief referring to the importation of monkeys from Punt.¹⁰³ This voyage took place after the Monkey paintings on Akrotiri and Knossos were created, since Hatshepsut did not rule in Egypt until after the eruption of the Thera volcano.¹⁰⁴ However, the references to it, and to previous such voyages, indicate a long history of travel to Punt before this famous voyage of Hatshepsut and her coregent and successor Thutmoses III. This can be seen in

¹⁰⁰ Wicker, F.D.P. "The Road to Punt." *The Geographical Journal*. 164:2. July 1998. 157.

¹⁰¹ Thomason, Alison Karmel. "Representations of the North Syrian Landscape in Neo-Assyrian Art." *Bulletin of the American Schools of Oriental Research*. 323. August 2001. 74.

¹⁰² Day, Jo. 2006. 193.

¹⁰³ Wicker, F.D.P. 1998. 157.

¹⁰⁴ Both Bietak (Bietak, Manfred. *The Synchronization of Civilizations in the Eastern Mediterranean in the 2nd Millennium BC: proceedings of an international symposium at Schloss Haindorf, 15th-17th of November 1996 and at the Austrian Academy, Vienna, 11th-12th of May 1998*. Verlag der Österreichischen Akademie der Wissenschaften Vienna. 2000.) and Eriksson (Eriksson, K.O. "Late Cypriot I and Thera: relative chronology in the eastern Mediterranean." *Acta Cypria: acts of an international congress on Cypriot archaeology held in Göteborg on 22-24 August 1991*. Part 3. SIMA Pocket-book 120. Paul Åströms Förlag. Jonsered. 152-223.) have argued for eruption dates coinciding with Hatshepsut's reign, although in later papers both proposed ranges of dates preceding Hatshepsut and Thutmosis III. The general consensus of those in support of the low chronology dates the eruption to the late 16th century (see chart in Manning, Sturt. "Clarifying the 'High' v. 'Low' Aegean/Cypriot Chronology for the Mid Second Millennium BC: Assessing the Evidence, Interpretive Frameworks, and Current State of the Debate." *The Synchronisation of Civilisations in the Eastern Mediterranean in the Second Millennium B.C. III*. ed. Bietak, Manfred; Czerny, Ernst. Verlag der Österreichischen Akademie der Wissenschaften. Vienna. 2007. 113), while Hatshepsut's reign likely began in 1479 BCE (Shelmerdine, Cynthia. *The Aegean Bronze Age*. Cambridge University Press. Cambridge. 2008. 6.)

an Eleventh Dynasty inscription describing just such a trading voyage.¹⁰⁵ The texts referring to such voyages clearly demonstrate a wish to bring back exotic plants and animals to demonstrate power and wealth.¹⁰⁶ Knowledge of the monkey likely made its way to Santorini and Crete via contact with Egypt or other areas of Northern Africa, at seaports like Tell el-Dab'a or Marsah Matruh, as their original habitat is deep inland, and the Aegean people would have been unlikely to venture so far into Africa.

It is possible that, despite their prevalence in wall paintings, the monkeys were not actually exported to the Aegean during the Bronze Age, as they would have been expensive and difficult to transport. Inhabitants of the Aegean may have seen the monkeys in Egypt and However, while it is possible that the blue monkey was never present on either Thera or Knossos, this does not change the fact that knowledge of the existence of such a creature must have come through contact with Egypt. And while monkeys and other animals may not have been imported, due to cost or inconvenience, their frequent depiction shows a desire for such exotic species.

One specific example of the importation of a plant species is that of the palm. The palm trees in Aegean wall paintings are all identifiable as the date palm, *Phoenix*. The island of Crete possessed its own variety of date palm, known as the *Phoenix theophrasti*, and the inhabitants may have depicted that endemic palm in the Cretan wall paintings. However, it is unlikely that the Cycladic islands possess any endemic variety of date palms. Yet the palms in the Akrotiri wall paintings are clearly of the *Phoenix* species, as demonstrated by the pinnate-shaped leaves and the single trunk, and the accuracy of the

¹⁰⁵ Dixon, D.M. "The Transplantation of Punt Incense Trees in Egypt." *The Journal of Egyptian Archaeology*. 55. August 1969. 55.

¹⁰⁶ Helms, Mary. *Ulysses' Sail: An Ethnographic Odyssey of Power, Knowledge, and Geographical Distance*. Princeton University Press, Princeton. 1988.

paintings indicates that the painter possessed a great familiarity with the palm, in all stages of growth. This long-term familiarity with the particular species is evidence of the presence of living, growing date palms on Thera, and thus the importations of a nonnative plant: either the Cretan variety (the *Phoenix theophrasti*) or the Near Eastern and Egyptian variety (*Phoenix dactylifera*).¹⁰⁷

In the East Frieze of the West House at Akrotiri two date palms appear in a landscape that is unlikely to be Thera, as it shows a river, and there are no permanent rivers on the island. In addition, the papyrus in the painting is inaccurate and stylized, especially when compared with the accuracy with which the date palm is depicted. The Egyptian plant, while it may have been imported physically to the Aegean, was clearly not a common enough plant for the artists to have as much familiarity with it as with the palm. However, the Aegean artists seem to have been aware of the Egyptian stylistic conventions when depicting papyrus, as they use them in their own paintings. This lack of familiarity and use of Egyptian styles indicate that the artists probably saw papyrus as exotic.¹⁰⁸

The landscape in the painting seems then to be a scene from some other place. It has been termed “Nilotic,” and could well be a scene along the banks of the Nile, save for the griffin in flight present in the painting, and the fact that some of the plants resemble Aegean species of reeds and vetches.¹⁰⁹ However, it could just as well be based on Greek mainland vegetation and landscape, or even a Cretan site, as Peter Warren suggests.¹¹⁰ The

¹⁰⁷ Morgan, Lyvia. *The Miniature Wall Paintings of Thera: A Study in Aegean Culture and Iconography*. Cambridge University Press. Cambridge. 1988. 24.

¹⁰⁸ Morgan, Lyvia. 1988. 22-23.

¹⁰⁹ Immerwahr, Sara. 1990. 73.

¹¹⁰ Warren, Peter. “The Miniature Fresco from the West House at Akrotiri, Thera, and Its Aegean Setting.” *The Journal of Hellenic Studies*. 99. 1979. 125.

palms are clearly not wild, as in their wild state date palms have dead fronds that hang down the trunk of the tree, and these do not. Thus, they have been tended.¹¹¹

The palm had great religious significance for the many cultures. For instance, the date palm is one of the plants included in the lulav, an object used in the celebration of Sukkot, the Jewish harvest festival, and in later Greece, the date palm was the sacred tree of Delos.¹¹² In Egyptian religion the date palm was partly connected to the sun god.¹¹³ In Mesopotamia, the palm was used in religious rituals as a representation of fertility, and in Assyria the date palm is seen as life-giving, and was often used in rituals of fertility and rebirth.¹¹⁴ It may also have been a religious symbol for the Minoan and Cycladic peoples, although that cannot be definitively determined at this point.¹¹⁵ Although Evans drew attention to a ‘triple-palm’ motif at Knossos that he believed to possess religious significance,¹¹⁶ Martin Nilsson, in his book on Minoan and Mycenaean religion, believes that there is not much cult imagery of the date palm.¹¹⁷ However, Nanno Marinatos disagrees, believing that the Minoans, possibly influenced by the religions of other Eastern Mediterranean cultures of the time, thought of the date palm as a religious symbol.¹¹⁸ Like the fig tree, another kind of tree often seen in Minoan artwork, the date palm has both a male and female variety. It can only fruit if the male pollinates the female. While this does occur naturally, the Egyptians and Mesopotamians did it intentionally in order to increase productivity. Over time, that process became a fertility ritual, as can be seen in a

¹¹¹ Sarpaki, Anaya. 1997. 663.

¹¹² Marinatos, Nanno. “The Date Palm in Minoan Iconography and Religion. *Opuscula Atheniensia*. XV:9. 1984. 121.

¹¹³ Wilkinson, Alix. 1998. 2.

¹¹⁴ Marinatos, Nanno. 1984. 115.

¹¹⁵ Sarpaki, Anaya. 1997. 663.

¹¹⁶ Evans, Sir Arthur. *The Palace of Minos at Knossos (Volumes 1-4)*. v2. MacMillan and Co. London. 1921-1935. 494.

¹¹⁷ Nilsson, Martin. *Minoan-Mycenaean Religion and Its Survival in Greek Religion*. C.W.K. Gleerup. Lund. 1950. 285.

¹¹⁸ Marinatos, Nanno. *Minoan Religion: Ritual, Image, and Symbol*. University of South Carolina Press. Columbia. 1993. 181.

Sumerian relief in which a king pours a libation over a date palm in a pot.¹¹⁹ Whether or not the religious nature of the Aegean imagery can be determined, what can be determined is that the date palm was religiously significant to the cultures of Egypt and the Near East, and that the painter of the East frieze associated the date palm with a scene that appears foreign and exotic.

While the images of blue monkeys and date palms in the wall paintings may be representative of the influence the Eastern Mediterranean on the Aegean garden, the landscape in many of those paintings is purely Aegean. Much of the landscape that exists in these wall paintings is unique, and is seen in no images from Egypt or the Near East. The “Saffron Gatherers”¹²⁰ painting from Akrotiri (Figure 6) depicts a rocky landscape, seemingly untamed by humans. The fact that the variety of colors and the shape of the landscape in the painting is reminiscent of a Dr. Seuss illustration at first gives the impression that the image is straight out of the painter’s (rather vivid) imagination. However, in analyzing the Aegean landscape, it can be seen that the volcanic nature of the region has led to erosion of the land that results in geological formations not unlike those in the painting.¹²¹

The same painting, the “Saffron Gatherers,” is known even more for the eponymous flora than for the landscape. The saffron crocus is one of the most common and well-known images of Aegean artwork. It appears on seals, ceramic vessels, wall paintings, and even shows up as an ideogram in later Mycenaean Linear B tablets.¹²² It is

¹¹⁹ Marinatos, Nanno. 1984. 115, 121.

¹²⁰ Doumas, Christos. 1992. 130-131, Pl. 122.

¹²¹ Rackham, Oliver. “Observations on the Historical Ecology of Santorini.” *Thera and the Aegean World III*. ed. Hardy, D.A.. The Thera Foundation. London. 1990. 389.

¹²² Negbi, Moshe and Ora. “Saffron Crocus Domestication in Bronze Age Crete.” *World Islands in Prehistory*. Oxford. Archaeopress. 2001. 272.

rarely seen in paintings of the period outside the Aegean. Even the Tell Dab'a paintings, with their resemblance to Minoan artistic techniques, include no images of the crocus.¹²³



Figure 6. Saffron Gatherers
(after the Thera Wall Paintings Exhibition)

While it has also not been conclusively determined whether the plants in the “Saffron Gatherers” image are the wild crocus (*Crocus cartwrightianus*), or the cultivated variety (*Crocus sativus*), Sarpaki tends toward the wild variety, given the surrounding wild-appearing environment in the painting.¹²⁴ However, the ‘wild environment’ may in fact be representative of the landscape of the sort seen at Phaistos, in the rocky area in the

¹²³ Day, Jo. 2011. 374.

¹²⁴ Sarpaki, Anaya. 1997. 661.

middle of the settlement. That rocky area has numerous pits in it, and many are clearly man-made. They could have been used for planting saffron bulbs. The size of the pits, being between 6-10cm deep, precludes the planting of domesticated saffron, since the bulbs need holes at least 18cm deep, but the wild variety could have grown in those pits, since wild bulbs need only 8-10cm of depth.¹²⁵

In a 2002 article, Ora and Moshe Negbi also contemplate the use of such rock gardens for growing saffron, and state that it is a possibility.¹²⁶ Their article delves further into whether the flowers depicted are of the wild or domesticated variety, based on plant morphology in Aegean imagery. According to the plant morphology, *cartwrightianus* has “short, upright, or slightly curved” style-branches, whereas those of *sativus* are “long, heavier, and drooping.”¹²⁷ The Minoan and Cycladic imagery depicts the saffron flowers with features consistent with *Crocus cartwrightianus*.¹²⁸ However, the fact that the flowers are of the wild variety does not indicate a lack of cultivation. In fact, it could be an illustration of the beginnings of a domesticating process, with wild plants grown and tended in a controlled environment. And even after the domestication of the flower, there could well have been a preference for the wild variety, since although the *sativus* was more profitable, since it produced more saffron per flower, the *cartwrightianus* was far more potent.¹²⁹ In addition, the domesticated crocus is sterile,¹³⁰ and if the crocus played a role in fertility or coming-of-age rituals, the fertility of the flower may have been a factor.

¹²⁵ Shaw, Maria. 1993. 683.

¹²⁶ Negbi, Moshe; Negbi, Ora. “Saffron Crocus Domestication in Bronze Age Crete.” *World Islands in Prehistory: International Insular Investigations, V Deia International Conference of Prehistory*. ed. Waldren, W. H.; Ensenyat, J. A. Archaeopress. Oxford. 2002. 268.

¹²⁷ Negbi. 2002. 269. Fig. 1.

¹²⁸ Negbi. 2002. 267.

¹²⁹ Pliny. *Natural History*. trans. John Bostock. George Bell and Sons. London. 1892. XXI.17.

¹³⁰ Negbi. 2002. 267.

While tending a trade crop is not the same as tending a luxury garden, there are some correlations. For example, at Knossos, there is an image of a being picking crocus stamens. Known as “The Saffron Gatherer,” there has been some debate as to whether that being is a boy, as originally stated by Evans, or a blue monkey, which is the current consensus.¹³¹ If it is indeed a blue monkey, as it is now believed to be, the fact that a symbol of luxury is depicted side by side with the product that may have assisted in acquiring that symbol is interesting in and of itself, but there is also the fact that the monkey is associated with the crocus, perhaps combining imagery of a control of animals with that of a control of plants.

Another common floral image is that of the lily. Red lilies are shown in a vase in a fresco in Room 4 of the West House¹³², and growing in a somewhat rugged landscape in another in Room Delta 2, to name only a couple of appearances.¹³³ The lilies as shown seem to be a combination of two species, the white Madonna lily (*Lilium candidum*), and the red *Lilium chalcedonicum*. It is also possible that the lily in the images is merely the Madonna lily, but that the red coloring was a product of artistic license.¹³⁴ Whether this combination of species was the result of unfamiliarity with the species, a lack of interest in a faithful representation, or artistic license is unknown.

¹³¹ Even Evans, when writing about the Saffron Gatherer figure, noted differences between it and conventional human figures, saying that it “differs from conventions of later Minoan wall-painting,” being “nearer to the female convention as regards its hue than the deep Venetian red that marks male figures.” (Evans, Sir Arthur. *The Palace of Minos at Knossos (Volumes 1-4)*. v1. MacMillan and Co. London. 1921-1935. 265-266.). J.D.S. Pendlebury, writing only a few years later, questions Evans’ conclusion, wondering “But is it a boy? He is naked but for two red strings round his waist, and what is more, one can make out (in the original, not the reproduction) a tail waving above him! Surely he is a monkey... when we consider that the conventional red for male, white for female figures is already fixed at Petsophas and the monkeys who appear in the House of Frescoes are also painted blue, it seems a strong argument.” Pendlebury also notes that he believes a Professor Pernier first put this theory forward. (Pendlebury, J.D.S. *The Archaeology of Crete; an Introduction*. Methuen & Co, ltd. London. 1939. 131)

¹³² Doumas, Christos. 1992. Pl. 63.

¹³³ Sarpaki, Anaya. 1997. 667.

¹³⁴ Baumann, Hellmut. *Greek Wild Flowers and Plant Lore in Ancient Greece*. Herbert Press Ltd. London. 1993. 171.

Lest it appear that all ideas or artifacts were either imported from the Eastern Mediterranean or native to the Aegean islands, the lily, so common in Aegean artwork, was perhaps imported from mainland Greece,¹³⁵ although that idea is still subject to debate, and the flower may in fact have been indigenous to the islands. It has been proposed that the lilies were cultivated for the perfume that could be created from them, and that this cultivation occurred in a garden environment.¹³⁶ However, in the paintings, the lilies are depicted both growing wild and in a domestic environment, set in vases.

At the site of Amnisos on Crete, a wall painting from a large house depicted a scene in which a variety of plants, including lilies, grew out of low structures. These structures, with ‘incurved sides,’ are clearly constructed by humans. This painting is perhaps the clearest evidence of gardens in the artwork of the Aegean. The landscape is tame, the flowers planted in human-made structures. While some of the reconstructions, like the presence of a woman in the scene, or the size of the painting, are questionable, the basic premise, of an organized and controlled garden scene, is unquestionable.¹³⁷

Another significant wall painting is that of the “Spring Fresco,” (Figure 7) from room two of the Delta building at Akrotiri, Thera. The scene in the painting is that of red lilies growing wild among rock outcroppings, while in the sky above swallows fly.¹³⁸ This is a scene of wild tranquility, and it seems to epitomize the desire that the Aegean people had for their gardens. That is, it is a scene of a domestic wilderness. For the imagery in the Aegean wall paintings is rarely entirely wild, and never completely domestic in the

¹³⁵ Rackham, Oliver. “The Flora and Vegetation of Crete and Thera Before and After the Great Eruption.” *Thera and the Aegean World I*. Thera and the Aegean World. London. 1978. 759.

¹³⁶ Negbi, Ora. “Domestication of Ornamental and Aromatic Plants in the Aegean: The Case of the Madonna Lily.” *The Wall-Paintings of Thera: Proceedings of the First International Symposium*- Volume II. The Thera Foundation. Piraeus, Greece. 1997. 597.

¹³⁷ Shaw. 1993. 666.

¹³⁸ Doulas, Christos. 1992. 100, Pl. 66-76.

sense of the Homeric garden.¹³⁹ In every scene of human interaction, such as that of the Miniature Frieze, there is a corresponding aspect of wilderness in the same painting. In the Miniature Frieze it is a cat chasing deer through a hilly, wooded environment.¹⁴⁰ However, the Spring Fresco needs no such balance, for it is the ideal in and of itself. It represents what the ideal Aegean garden may have looked like, with its perfect balance of untamed and controlled.



Figure 7. Spring Fresco
(after the Thera Foundation Wall Painting Exhibition)

This quality of untamed nature is not entirely unique. There are records, in the Near East, describing similar constructions. Although he ruled at a far later date than the dates of the construction of the Aegean gardens, Nebuchadnezzar constructed a ‘natural’ park

¹³⁹ Ferriolo, Massimo Venturi. “Homer’s Garden.” trans. Nicole Douek. *Journal of Garden History*. 9. 1989. 86-94.

¹⁴⁰ Doulas, Christos. 1992. Pl. 30.

that he filled with stones, to resemble mountains, and mountain trees, in order to create a landscape in which his mountain-born wife would feel at home.¹⁴¹ Nevertheless, it is possible that by the 6th century BCE, when Nebuchadnezzar reigned, the Babylonians might have adopted garden characteristics from their Western neighbors.

However, the images and descriptions of gardens in the Near East and Egypt from the second millennium BCE are of geometrically designed, symmetrical, controlled environments in which exotic species of plants and animals could be displayed. While the presence of nonnative species like monkeys, papyrus, and date palm show a similar inclination toward display, Aegean paintings do not show straight lines of trees surrounding centrally placed ponds. The inhabitants of the Aegean, while they may have adopted some aspects of the Near Eastern and Egyptian gardens, clearly developed and maintained their own sense of aesthetics, applying those tastes to the design of their own gardens.

¹⁴¹ Oppenheim, A. Leo. 1965. 332.

Chapter 5 Religion

Aegean Bronze Age religion has been the subject of numerous articles and books over the last century or so. Discussions and debates on the subject have ranged from ritual practices, to the identity of deities, to the locations and uses of sacred sites, to mention only a few. One aspect most of those discussions have had in common is an acknowledgement that nature- floral, faunal, and geological- is in some way integral to Aegean Bronze Age religious beliefs and practices. The religious significance of nature can be seen in wall paintings, on seals, and through the locations of the places of worship. Given the importance of nature in religious contexts, it is clear that the Aegean people possessed a strong relationship with the natural world, and that relationship would have contributed considerably to the development of the form of the garden in the Aegean Bronze Age.

Gardens in the Near East and Egypt were often focused around religious sites. Their locations along the approaches to temples and tombs and the use of products of the garden in religious rituals indicate the centrality of gardens to Near Eastern and Egyptian gardens.¹⁴² However, unlike the religions of cultures in Egypt and the Near East at the time, Aegean religious ritual seems to have in many cases taken place outside the settlements, on nearby mountaintops or inside caves.¹⁴³ These places are where the transition between earth and sky or earth and underworld occur. These places of change, the caves and peaks, represented not only physical transitions, but transitions between

¹⁴² Wilkinson, Alix. 1998. 2-3.

¹⁴³ Nilsson, Martin. *The Minoan-Mycenaean Religion and Its Survival in Greek Religion*. C.W.K. Gleerup, Lund. 1950. 53, 56; Marinatos, Nanno. *Minoan Religion: Ritual, Image, and Symbol*. University of South Carolina Press. Columbia, SC. 1993. 39, 115-126.

spiritual states, between stages of life, and between the natural and the supernatural.¹⁴⁴ For example, one of the likely reasons that caves became sacred spaces is because they had been used as burial sites,¹⁴⁵ and the transition from life to death is one of great significance.

The significance attached to peak and cave sanctuaries may have moved to the building complexes as the complexes developed.¹⁴⁶ However, the need for transitional spaces remained. Gardens could well have filled that need. Gardens are neither part of buildings nor entirely separate from them. They are neither natural nor entirely created by humans. Gardens, like the mountain peaks and caves, are transitional spaces, and were likely used in similar ways.

This use can be seen in Aegean imagery like the “Saffron Gatherers” wall painting from Akrotiri (Figure 6). The painting shows women gathering crocus flowers in what many have hypothesized is a religious ritual, possibly a rite of passage.¹⁴⁷ This ritual takes place in a field of crocuses growing in a rocky landscape that could be, and has been, interpreted as a wilderness. However, as will be discussed in more detail in a later chapter,¹⁴⁸ the landscape in the painting bears a strong resemblance to the geology of a rocky formation in a courtyard of the Phaistos building complex, in which were carved holes where crocus could be planted.¹⁴⁹ It is thus possible that the ritual depicted in the painting took place not in the wilderness, but in a constructed landscape- in a garden.

¹⁴⁴ Herva, Vesa-Pekka. "Flower Lovers, After All? Rethinking Religion and Human-Environment Relations in Minoan Crete." *World Archaeology*. 38.4. 2006. 590.

¹⁴⁵ Nilsson, Martin. 1950. 53, 56.

¹⁴⁶ Lupack, Susan. "Minoan Religion." *Oxford Handbook of the Bronze Age Aegean*. ed. Cline, Eric. Oxford University Press. Oxford. 2010. 253.

¹⁴⁷ Marinatos, Nanno 1993. 205; Doumas, Christos. 1992. 130-131.

¹⁴⁸ See discussion on the Phaistos Rock Outcropping on pages

¹⁴⁹ Shaw, Maria. 1993. 680-685.

An extension of the “Saffron Gatherers” wall painting, the “Mistress of Animals,” shows a seated woman, larger than the other women in the paintings. Such size differentiation indicates that the seated woman is a goddess. Next to that goddess is a griffin, and in front of her stands a blue monkey offering her crocus. She wears a necklace of ducks and dragonflies.¹⁵⁰ This image clearly associates the goddess with the natural world, and Aegean seals often depict deity figures- figures shown as the object of adoration and worship- on mountaintops or surrounded by plants and animals.¹⁵¹ The primary deities of the Aegean world are thus strongly connected to the natural world. Moreover, many of the aforementioned seals depict plants and animals have been controlled or tamed. For example, a number of those same seals show human (or deity) figures holding animals, riding animals, or standing next to animals that have been collared.¹⁵² Others display trees or plants in baskets or pots, or growing out of human-made structures that likely served as shrines,¹⁵³ given their association with deities and worship. (Fig. 8-10)



Figure 8. Seal- Goddess Smelling Lilies
(after Marinatos, Nanno. 1993. Fig. 123)

¹⁵⁰ Marinatos, Nanno. 1993. 151.

¹⁵¹ Marinatos, Nanno. 1993. Fig. 119, 123-129, 133, 138, 143, 149, 150, 172-174.

¹⁵² Marinatos, Nanno 1993. Fig. 128, 130-132. 136, 154-156, 162, 168.

¹⁵³ Marinatos, Nanno. 1993. 182-183. Fig. 123, 150, 171, 172, 184. Marinatos believes that the trees are in containers places on top of the structures (shrines), not growing within them.

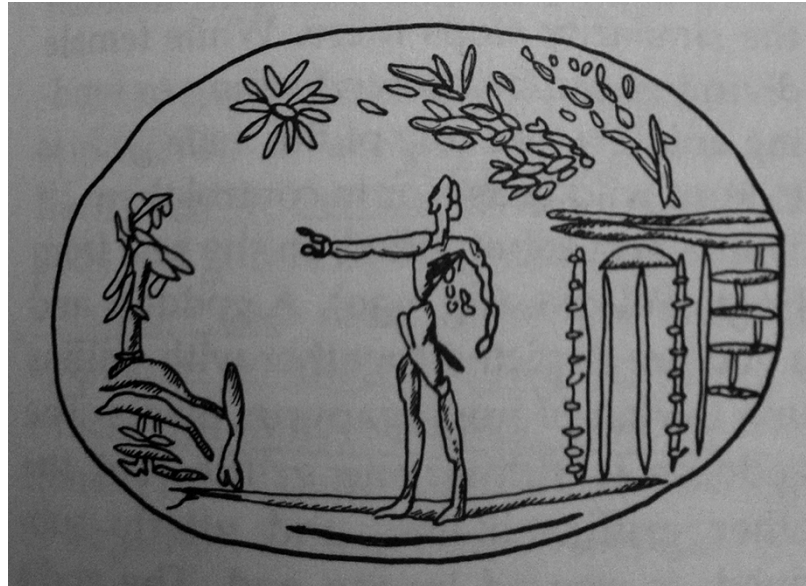


Figure 9. Ring- Epiphany of a God Next to Tree Shrine
(after Marinatos, Nanno. 1993. Fig. 172. Now in Berlin)



Figure 10. Ring- Arrival of Goddess and Tree in Boat
(after Marinatos, Nanno. 1993. Fig. 150)

The centrality of the tree in Aegean cult practice has been remarked upon for over a century. In 1901, Evans published a paper on a form of Aegean religion called the ‘tree and pillar’ cult. It was based on two central features- a tree and a pillar of stone.¹⁵⁴ During his excavations at Goulas in Crete, Evans noticed a small building out of which he believed a tree had grown. He reconstructed it with low walls, over which the tree branches could hang, closely resembling the seals showing trees growing out of structures. He interpreted this building as a tree shrine, and the cistern next to it as a source of water for ritual watering, postulating that a pillar may have at one point been set in front of the doorway to the enclosure. In his paper, Evans discusses the various species of trees shown within enclosures of this sort on seals. While he seems to think the tree at Goulas was a palm, based on a seal found at the site, he observed pine, cypress, the plane tree, the fig, and some sort of vine on other seals.

The relationship between Aegean religion and the Aegean attitude toward nature largely dictated the appearance of the Aegean garden. The trees and flowers seen in Aegean artwork all seem to possess religious significance- the trees all shown in shrines, the flowers as part of religious rituals, or in association with deities, like the ritual shown in the “Saffron Gatherers,” where a goddess receives saffron as tribute, or the seal on which a female figure- a goddess- bends over a lily (Figure 8). Thus, even if a garden were not designed with a religious purpose in mind, the symbolic significance of the plants would imbue it with religious meaning.

¹⁵⁴ Evans, Sir Arthur. “Mycenaean Tree and Pillar Cult and Its Mediterranean Relations.” *The Journal of Hellenic Studies*. 21. 1901. 100.

Aegean seals showed trees and plants not only within the shrine structures, but also in baskets or pots. In one seal, a female figure bends over a potted lily, presumably to smell it (Figure 8). In another, it appears as though a goddess and a potted tree are in a boat (Figure 10), reminiscent of the Punt voyage images of incense trees transported home in baskets to Egypt. Potted trees and flowers, seen so frequently in religious contexts, played a significant role in Aegean garden design, a role that will be discussed in more detail in a later chapter.

The religious focus on the tree as depicted on seals in the Aegean also reflects the focus on trees in the gardens of Mesopotamia, where the tree frequently inhabited the central place in the garden. The tree in the Near East and Egypt served as a significant feature in gardens that served a religious purpose, supplied fruit and wood for religious rituals,¹⁵⁵ were held sacred by the gods, and were in some cases even believed to be the homes of certain deities.¹⁵⁶ In the Aegean as well it appears that the tree served as a religious object. In addition to the seals showing deities in association with trees and adorants worshipping trees, there are also seals that show deities appearing from trees.¹⁵⁷ Certain types of trees possessed more religious significance than others in the region. Specifically, in the Near Eastern gardens the central tree was often a palm,¹⁵⁸ and in Egypt the date palm was sacred to the sun god.¹⁵⁹ In the Aegean the date palm likely also served a religious purpose. In fact, the role of the date palm in Aegean religion may well have developed through contact with the Near East and Egypt.¹⁶⁰

¹⁵⁵ Dalley, Stephanie. 1993. 1-3.

¹⁵⁶ Marinatos, Nanno. 1993. 181.

¹⁵⁷ Marinatos, Nanno. 1993. 180-181, Fig. 177.

¹⁵⁸ Dalley, Stephanie. 1993. 1.

¹⁵⁹ Wilkinson, Alix. 1994. 2-3.

¹⁶⁰ Marinatos, Nanno. 1993. 181.

However, while contact with the Eastern Mediterranean may have influenced the role of certain plants in the Aegean, nature itself continued to play a different role in the Aegean than it did in those contemporary cultures. In the Aegean there seems to have been more of a connection to the ‘wild’ than there was in the Near East and Egypt, where control over nature, particularly through geometries of cultivation, has been attested to in text, image, and material evidence. In Egypt and the Near East, trees were often planted in straight lines, their numbers and species recorded. Even the garden sites in Egypt, based around a natural feature at a location determined by the actions of a god, were thoroughly transformed by human hands.

In the Aegean, most of the representations of nature maintain a sense of wildness, possibly as an echo of the older peak and cave sanctuaries. That same wildness can be seen in the descendants of those nature sanctuaries- the garden. The landscapes in Aegean frescoes have a rugged appearance, and the plants do not seem to be grown in any particular pattern. The same goes for the archaeological remains of gardens, as seen in the irregularly spaced holes in the Phaistos stone garden. Louise Hitchcock, in an analysis of the design of the Minoan building complexes, states that some have thought of them as illogical and disorderly.¹⁶¹ However, she argues that the very architecture reflects the complex, religious relationship between the Aegean people and the natural world. Because of that relationship they favored the intricacy of nature over the symmetry of human control, and that preference shows itself both in the architecture,¹⁶² and in the design of the gardens.

¹⁶¹ Graham, J. Walter. *The Palaces of Crete*. Princeton University Press. Princeton. 1987. 244

¹⁶² Hitchcock, Louise. “Naturalising the Cultural: architectonised landscape as ideology in Minoan Crete.” *British School at Athens*. 15. 2007. 91.

Chapter 6

An Analysis of the Proposed Locations of Aegean Gardens

The analysis of the Aegean garden in this thesis has thus far been based on indirect evidence, and while the studies of related artwork and religious practices are important approaches to this subject, it is equally, if not more, important to study the direct evidence of gardens at Aegean sites, such as the actual locations of the gardens, and the relationships of those locations to the rest of the settlement. By studying the locations of gardens at Aegean Bronze Age sites, it is possible learn how those locations dictated the form and content of the gardens.

In the Near East and Egypt, the locations of the gardens were situated primarily along the approach to the associated building, placed so in order to impress any visitors with the wealth and power of the owner or resident deity. Kings and their courts often ate or rested in courtyard gardens, in the shade of date palms and tamarisks, surrounded by pools or fountains.¹⁶³ Planting pots, planting pits, paintings, and textual evidence all attest to the locations of these gardens.¹⁶⁴ The sites of the Aegean do not possess such well-documented garden spaces, but there are a number of proposed elite garden locations at settlements in the Aegean, primarily concentrated at Cretan sites.

Phillip Betancourt, as mentioned previously, has established some parameters for the functional domestic garden of the Bronze Age Aegean. According to him those gardens would have been flat, near water, and close to the house.¹⁶⁵ While some elite gardens may have possessed these qualities as well, it is important to acknowledge some

¹⁶³ Dalley, Stephanie. 1993. 2.

¹⁶⁴ Crawford, Harriet. 2004; Dalley, Stephanie. 1993; Wilkinson, Alix. 1994; Wilkinson, Alix. 1998; Wiseman, D.J. 1983; etc.

¹⁶⁵ Betancourt, Philip. 2007. 26.

key differences between the two types of gardens. Functional domestic gardens would have been located as near a source of water as possible, to decrease the amount of effort needed to irrigate them.¹⁶⁶ However, the location of elite gardens would not have been entirely dependent on the proximity of water. Creating a garden in a desert, or similarly dry environment, and being able to afford the labor needed to bring in enough water to sustain it, would demonstrate wealth and power- one of the main purposes of an elite garden. Similarly, garden maintenance is less labor-intensive when the garden is planted on a relatively flat surface, so level ground is a useful quality for a functional garden;¹⁶⁷ it is not as valued a characteristic for display gardens. The possible locations of elite gardens, therefore, extend beyond those of functional domestic gardens- as can be seen when examining the proposed garden locations in the Aegean.

For the most part, these proposed locations have simply been open areas with no other known purpose within the confines of the settlement, such as an empty courtyard in the northwest of the site of Mallia.¹⁶⁸ In many cases, designating an empty space as an Aegean garden has simply been a way to give that space meaning. However, other locations at Bronze Age sites, such as a rocky outcropping at the site of Phaistos, are stronger candidates for garden sites, as they possess qualities more uniquely suited to a garden than to any other function.

At the site of Mallia on Crete, there is a large area to the northwest of the building complex (Figure 11), just beyond the possible residential quarters, which was left without structures during the Neopalatial period.¹⁶⁹ This lack of construction has led both the

¹⁶⁶ Betancourt, Philip. 2007. 26.

¹⁶⁷ Betancourt, Philip. 2007. 26.

¹⁶⁸ Graham, J. Walter. 1987. Pl. 58.

¹⁶⁹ Day, Jo. 2006. 190.

French excavators, Chapouthier and Demargne,¹⁷⁰ and J. Walter Graham,¹⁷¹ to propose this area as a garden. Just off the ‘residential quarters’ of the building complex,¹⁷² it is one of the few proposed garden sites in the Aegean that was not paved.¹⁷³ Both the lack of paving and the location near the residential quarters indicate a possible garden site. While these characteristics are not conclusive, they are certainly suggestive. Unfortunately, no analysis of the soil was conducted at the time of excavation. Such an analysis could have revealed evidence of manuring, strengthening arguments for the use of the courtyard as a garden.

Three areas at the Phaistos building complex (Figure 12) have been proposed as possible garden sites. The first two of these are the unroofed room 49,¹⁷⁴ and the open space to the north of the site, just beyond the area numbered 85.¹⁷⁵ The third, a ‘garden’ site to the east of the building complex, presents the most interesting possibilities. It includes a large rocky outcropping that shows signs of tooling, trimmed back on several sides. It is also contains numerous irregularly-spaced small round cavities, some of which were certainly created intentionally.¹⁷⁶ Maria Shaw states that the outcropping, incorporated as it is into the building complex, is ‘perfect for a Minoan rock garden.’¹⁷⁷

At first glance it seems an unlikely place for a garden. Louise Hitchcock disagrees with Maria Shaw’s interpretation of the space as a garden, remarking the holes would have been too shallow to allow plants to grow, and that it is more likely to have been a ‘food

¹⁷⁰ Chapouthier, Fernand; Demargne, Pierre. *Fouilles exécutées à Mallia : quatrième rapport, exploration du palais, bordure méridionale et recherches complémentaires (1929-1935 et 1946-1960)*. *Etudes Crétoises* 12. Paul Geuthner. Paris. 1962. 37.

¹⁷¹ Graham, J. Walter. 1987. Pl. 58.

¹⁷² Graham, J. Walter. 1987. Pl. 58.

¹⁷³ Day, Jo. 2006. 192.

¹⁷⁴ Day, Jo. 2006. 190.

¹⁷⁵ Graham, J. Walter. 1987. 89.

¹⁷⁶ Shaw, Maria. 1993. 683.

¹⁷⁷ Shaw, Maria. 1993. 680.

processing area' for a pre-palatial settlement.¹⁷⁸ However, Maria Shaw addresses this 'problem' in her article. The cavities in the outcropping are of varying sizes, usually

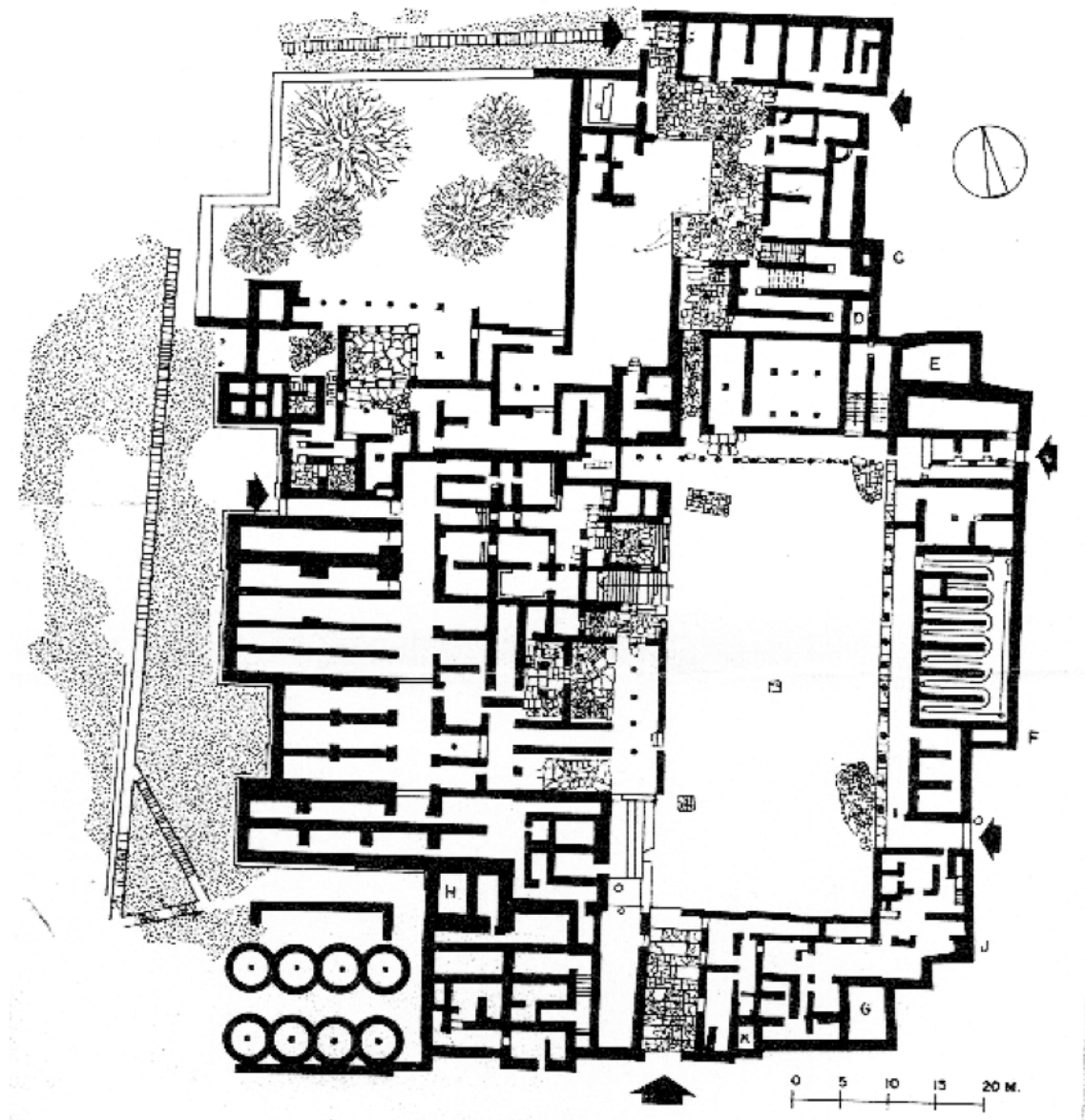


Figure 11. Palace of Mallia
(after Graham, J. Walter. 1987. Pl. 6)

¹⁷⁸ Hitchcock, Louise. *Minoan Architecture: A Contextual Analysis*, Paul Åströms Förlag. Jonsered. 2000. 173.

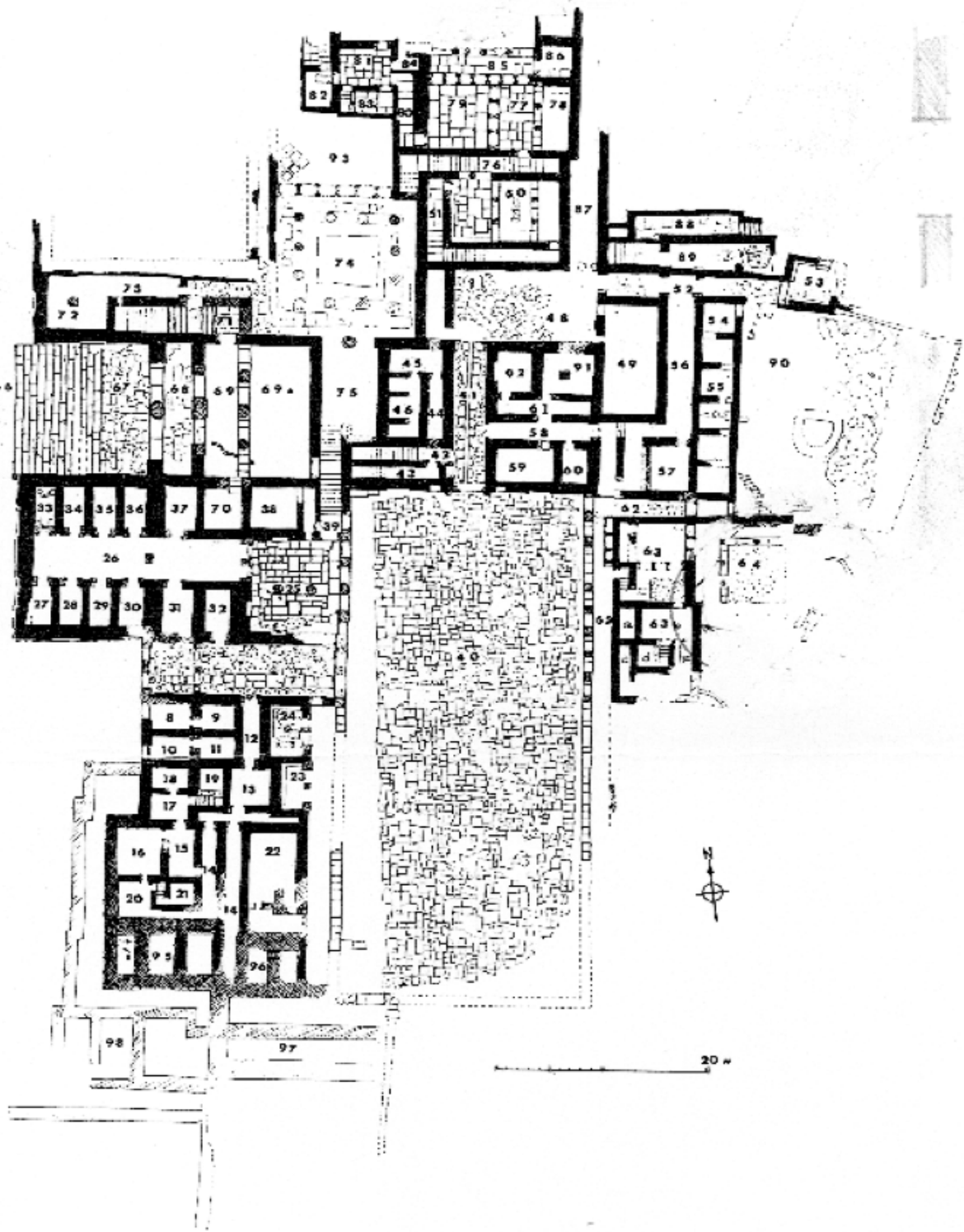


Figure 12. Last Palace at Phaistos
(after Graham, J. Walter. 1987. Pl. 4)

10-30 cm in diameter and 6-10cm deep, and while this may not appear very deep, wild crocus corms only need to be planted 8-10cm deep, perfectly possible in these cavities. Similarly, the bulbs of other flowers, such as the *pancratium maritimum*- the sea lily- and *lilium candidum*- the Madonna lily- need only a few centimeters of soil, since they can be planted very near the surface.¹⁷⁹ The same goes for miniature irises or violets.¹⁸⁰

Others argue that had the pits indeed been used to hold plants, there would have been problems with waterlogging; however, the bedrock from which the pits were carved is fairly porous, which probably assisted with drainage.¹⁸¹ In addition, the bulbs may have been changed seasonally to keep the garden in bloom, and thus would not have needed to survive for more than a few months, perfectly possible even in waterlogged conditions, especially when the garden was inhabited by plants such as the sea lily, a coastal flower accustomed to waterlogged environments.

In addition to Maria Shaw's arguments, recent research on the subject has proven that it is not only possible for small plants to grow out of such pits, but they can flourish. According to Peter Trowbridge and Nina Bassuk, landscape architects who specialize in dealing with difficult planting situations, the most important issue to deal with would be the amount of soil needed to support the plant, since the cavities limit the possible amount of soil. In this case, that would not be particularly difficult. The primary role of soil is to store water so that the plant has enough to last through dry spells. However, these flowers were planted in a small area that is within the building complex, making manual watering a fairly simple task. Regular manual watering would decrease the need for the soil to retain

¹⁷⁹ Tenenbaum, Frances. *Taylor's Encyclopedia of Garden Plants*. Houghton Mifflin Harcourt. New York. 2003. 237, 289.

¹⁸⁰ Shaw, Maria. 1993. 683.

¹⁸¹ Shaw, Maria. 1993. 683-685.

water. The use of a soil with a high water-holding capacity, such as a clay soil or a soil with a large amount of organic material, would also decrease the amount of soil needed.¹⁸²

The Phaistos outcropping is not the only rock-cut pit garden of the ancient Mediterranean, but it may have been the earliest example of a practice that continues even today (Figure 13). Other such gardens include the 14th century BCE rock-cut pit plantings at the funerary temple of Amenhotep,¹⁸³ the tree-pits surrounding the early 7th century BCE Festival Hall of Assur,¹⁸⁴ and the tree-pits at the later Greek Temple of Hephaistos,¹⁸⁵ all later than the construction of the building complex at Phaistos.¹⁸⁶ The presence of rock-cut pit plantings at these later sites shows not only that plants can grow in such conditions, but also that the practice of planting in stone pits was well-known to ancient Mediterranean cultures.



Illustration 1. “Gardens of Stone” by Andy Goldsworthy
(Photograph by the Museum of Jewish Heritage)

¹⁸² Trowbridge, Peter; Bassuk, Nina. *Trees in the Urban Landscape: site assessment, design, and installation*. John Wiley. Hoboken, NJ. 2004. 74, 78.

¹⁸³ Wilkinson, Alix. 1998. 113.

¹⁸⁴ Gothein, Marie-Luise. 1979. 32-33.

¹⁸⁵ Thompson, Dorothy Burr. “The Garden of Hephaistos.” *Hesperia*. 6:3. The American Excavations in the Athenian Agora: Twelfth Report. 1937. 403.

¹⁸⁶ Manning, Sturt. “Formation of the Palaces.” *The Aegean Bronze Age*. ed. Shelmerdine, Cynthia W. Cambridge University Press. Cambridge. 2008. 110-111.

Imagining the rocky outcropping at Phaistos planted with crocuses or lilies, one encounters a familiar scene. The resulting appearance of such a rock garden would have closely resembled the ‘Spring Fresco’ from Akrotiri, with flowers springing from the rocks at intervals,¹⁸⁷ or even the “Saffron Gatherers,” with its rocky landscape and single species cultivation of crocus. The resemblance of those images to what the outcropping would look like if the pits were planted is remarkable, and given that it would indeed be physically possible to grow both lilies and crocus in those pits, it seems clear that this area was used as a garden site.

At Knossos, a hypothetical garden was located just outside the Hall of Double Axes, in an area of the complex thought to have domestic purposes. The site is a “...terrace, bounded on the east and south by a low retaining wall...”¹⁸⁸ Another area of the site at Knossos that may have had a garden purpose is the upper floor, or ‘roof terrace’ in the space between the Pillar Crypt and the Throne Room, located on the lower floor. Evans reported having found numerous ‘flower pots’ on this terrace,¹⁸⁹ suggesting that there was some sort of terrace or roof garden in this space.

The small part of the settlement at Akrotiri that has been excavated has no proposed garden area as of yet. This is likely due to the fact that the buildings at the site are densely packed, leaving little room for courtyard space, and the excavation has not extended beyond the buildings themselves, so there is as yet no known open space the purpose of which is unknown. This does not mean that Akrotiri possessed no gardens, however. It is possible that the garden sites have merely not yet been cleared. It is also

¹⁸⁷ Shaw, Maria. 1993. 685.

¹⁸⁸ Graham, J. Walter. 1987. 87.

¹⁸⁹ Evans, Sir Arthur. *The Palace of Minos at Knossos (Volumes 1-4)*. v4:2. MacMillan and Co. London. 1921-1935. 1002.

possible that the inhabitants of Akrotiri created gardens on terraces or balconies. Unlike the building complex sites on Crete, the areas thus far excavated at Akrotiri possess no large gathering spaces, no courtyard areas where people could gather to do household chores. It is possible that, instead of these large gathering areas, the inhabitants of Akrotiri, pressed for space, used terraces or balconies on their buildings for such daily outdoor activities.¹⁹⁰ It is also possible that they used this limited space for gardens, employing planting pots to do so.

What Akrotiri does possess, however, is more extensive garden imagery than any of the aforementioned sites. It is possible that without open spaces in which to construct living gardens, the people of Akrotiri created the floral wall-paintings seen throughout the site as an attempt to create garden environments. The creation of such an environment, while not seen at other sites in the Aegean, would not be entirely unique to Akrotiri. One of the most famous wall-paintings of the Roman Empire, the Garden Frescoes of Livia's Villa, covered four walls of a windowless room entirely in a floral scene, creating an impression of being entirely surrounded by a garden.¹⁹¹ In a culture that clearly possessed a close connection to nature, such an approach to dealing with a lack of space for living gardens would not be unthinkable. It is interesting to note that a site with many such 'garden' paintings, Akrotiri, has as yet no identified areas that could have been used as gardens, and sites that possesses multiple areas identified as possible garden locations, like Phaistos, have fewer such images.¹⁹²

Garden sites in the Bronze Age Aegean have a great deal in common with the courtyard gardens of the Near East and Egypt. They were quiet and secluded places of

¹⁹⁰ Sarpaki, Anaya. 1997. 222.

¹⁹¹ Kuttner, Ann. 1994. 211-224.

¹⁹² Immerwahr, Sara. 1990.

retreat, contained within building complexes, and frequently located near the residential quarters. However, unlike those contemporary places, there are as yet no larger areas at Aegean settlements along the approaches to building or set off as parks that have been identified as garden sites. Whether that lack of larger gardens can be attributed to poor soil quality, a different set of aesthetic values, or just the fact that the larger gardens have yet to be uncovered, is unknown. What is known is that, in addition to familiar courtyard gardens, whether on dirt or paved surfaces, the Aegean people also created a unique and innovative courtyard garden form in the Phaistos outcropping, a garden form that retained much of its natural appearance. The Aegean people, while they may have adopted many aspects of their gardens from the Near East and Egypt, did not adopt the highly structured and controlled appearance of those contemporary gardens. Despite the space limitations imposed by the courtyard locations of the gardens, and the limitations of the Aegean climate, the inhabitants of the Aegean islands preserved a sense of the wild in their gardens.

Chapter 7

Planting Pots

When Sir Arthur Evans excavated at Knossos, he uncovered a large number of ceramic vessels that he designated ‘flower pots,’ which he firmly believed were used at garden sites throughout the Aegean,¹⁹³ citing that the holes in the bottoms of these pots were for drainage, and that they were used in the same way we use ceramic pots for planting today. While his conclusions may have been based more on conjecture than supporting evidence, they are not without merit. The striking resemblance to today’s planting pots, the fact that many of the Bronze Age pots are decorated with floral designs, the depiction of flowers in pots in Aegean artwork, and the known use of planting pots in Egyptian and Near Eastern cultures are all strong indicators on their own that these pots were used to grow plants. Taken together, the evidence is conclusive. Planting pots were used as part of garden design in the Bronze Age Aegean. And while inhabitants of the Near East and Egypt also used planting pots as part of their garden design, the pots would have had a special significance in the Aegean, where the majority of garden proposed locations are paved courtyards or stone mounds.

The cultures of Egypt and the Near East are well known to have employed planting pots. Plant pots are present at a number of archaeological sites across Egypt, including Tell Dab’a, Amarna, and Tanis, where the pots were found laid out in three straight rows.¹⁹⁴ In the Near East, there are also numerous examples of flowers pots, including the site of Tell Brak in north-eastern Syria, where excavators have retrieved a number of

¹⁹³ Brown, A. *Arthur Evans’s Travels in Crete 1894-1899*. Archaeopress. Oxford. 2001. vii.

¹⁹⁴ Wilkinson, Alix. 1998. 26.

‘coarse flower pots,’¹⁹⁵ and a stele carved during the reign of Ur-Nammu of Sumer depicts the king pouring a libation onto what appears to be a palm in a large pot as an offering to a god,¹⁹⁶ an image not unfamiliar to those who have seen Aegean seals depicting similar scenes.

The reason for the use of plant pots is never explicitly stated, but there are a number of benefits to be gained from the use of plant pots. They may have been used as a way of creating a layered effect in the garden, as a way to control water in an arid environment, or as protection against animals like goats or pigs, which often strip bark or dig at roots, thereby killing trees.¹⁹⁷

The soil along the banks of the Nile is famously fertile. Canals, many based on natural channels and branches of the Nile, assisted in the irrigation of plant-life. Soils accumulated both naturally and by human reinforcement along the banks of those channels, and plants and trees thrived along those banks, since root systems could draw upon moisture in the soil. However, in desert areas of Egypt, the environment was not as conducive to gardens: beyond the banks of the river stretched miles of drought-ridden sands and cracked earth. Not all agriculture or gardens were located along the riverbanks, and getting water to the plants of those other gardens could be quite a labor-intensive activity.¹⁹⁸ Much of the watering had to be done manually, a time-consuming and expensive venture, which limited the sizes of the gardens, and made gardens with the purpose first and foremost of display even more of a luxury. Innovations to minimize runoff and use the water more efficiently included specially dug pits for vines and trees, which

¹⁹⁵ Oates, Joan. “Trade and Power in the Fifth and Fourth Millennia BC: New Evidence from Northern Mesopotamia.” *World Archaeology*. 24:3. February 1993. 405-406.

¹⁹⁶ Limet, Henri, “The Cuisine of Ancient Sumer.” *The Biblical Archaeologist*. 50:3. September 1987. 143.

¹⁹⁷ Wilkinson, Alix. 1998. 26.

¹⁹⁸ Eyre, C.J. “The Water Regime for Orchards and Plantations in Pharaonic Egypt.” *The Journal of Egyptian Archaeology*. 80. 1994. 58-59.

often contained mud or clay pots. These pots were filled with fertile soil, and held water in around the root-systems.¹⁹⁹ Thus, the Egyptians were able to demonstrate their wealth and their power over nature by bringing plants into the desert and forcing them to grow there.²⁰⁰

In addition, the ability to transport plants and trees over distances, provided by the plant pots, was quite useful, enabling the import of exotic plants to these elite display gardens. The relief of Hatshepsut's voyage to Punt shows trees being transported in pots or baskets. Such voyages had also occurred before Hatshepsut's reign. In fact, imports from Punt had been a staple in Egypt for nearly a millennium before the reign of the famous female pharaoh. Images of vessels voyaging to Punt are seen as far back as the reign of King Sahure of the fifth dynasty. There exists in King Sahure's tomb reliefs depicting ships voyaging down the Nile from Punt.²⁰¹ It is possible that, like the voyage of Hatshepsut, the earlier voyages also brought back plants both large and small from Punt, and they would likely have used the same methods, transporting the plants in baskets or pots.

It is possible that encounters with Egyptian traders exposed the Aegean peoples to the benefits of portable plant containers, particularly with regard to trade, leading the Minoans and Cycladic peoples to begin to use similar containers for their own trade in plant material. While it is unknown whether the Aegean people did trade in live plants, it has certainly been postulated that the Theraans traded in saffron.²⁰² It is therefore possible that they also traded in live crocus. They may well have used planting pots to transport

¹⁹⁹ Wilkinson, Alix. 1998. 26.

²⁰⁰ Wilkinson, Alix. 1994. 4.

²⁰¹ Wicker, F.D.P. "The Road to Punt." *The Geographical Journal*. 164:2. July 1998. 161.

²⁰² Sarpaki, Anaya. 1997. 664-665.

their botanical products. Later, they may have adopted the use of plant pots as a more permanent part of garden design.²⁰³ While it is quite possible that the Aegean people developed the concept of the ‘flower pot’ independently, it is equally likely that the concept originated in Egypt or the Near East, where there is so much evidence of their use.

In the Aegean, like in Egypt and the Near East, plant pots exist both physically and in art. There are representations of plant pots in Aegean wall paintings at the sites of Amnisos and Knossos on Crete, and Akrotiri on Santorini.²⁰⁴ One such representation, of two flower-pots with red lilies rising out of them is on each side of the window, is on the walls of room 4 of the West House at Akrotiri, framing the window of the room (Figure 14).²⁰⁵ At Amnisos, the ‘pots’ in the painting take the form of large structures out of which flowers bloom.

Plant pots themselves have also been discovered at many Aegean sites. A number of them were discovered the first year of Evans’ Knossos excavations. In Evans’ reports, he described these pots as “high vases of elegant form- often adorned with the favourite designs of reeds or grasses- and showing perforations in their bases recalling those of modern flower-pots.”²⁰⁶ This description was accompanied by a series of sketches and a photograph of these pots (Figure 15). He found these pots at many locations throughout the site, and sometimes used the locations of these pots to judge where he believed the gardens of the site to be. It was also Evans’ belief that various so-called altar-bases also served as a

²⁰³ Herva, Vesa-Pekka. "Flower Lovers, After All? Rethinking Religion and Human-Environment Relations in Minoan Crete." *World Archaeology*. 38:4. 2006. 591.

²⁰⁴ Shaw, Maria. 1993. 680.

²⁰⁵ Marinatos, Spyridon. *Excavations at Thera V-VI: 1972-1973 Seasons*. VI. Archaeological Society at Athens. Athens. 1999. Pl. 3.

²⁰⁶ Evans, Sir Arthur. *The Palace of Minos at Knossos (Volumes 1-4)*. v3. MacMillan and Co. London. 1921-1935. 277.

kind of plant-container, holding young palms with ‘sacral association’ at Minoan shrines.²⁰⁷

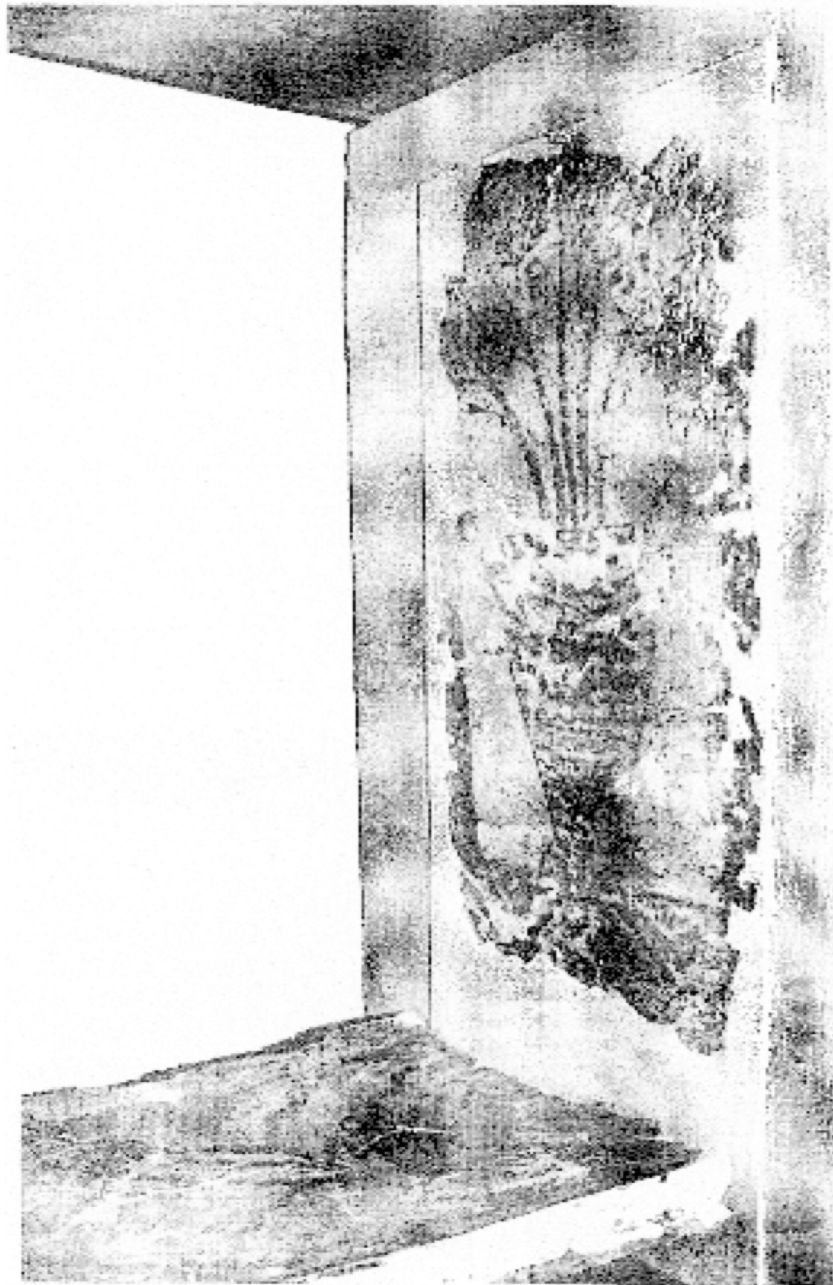


Figure 13. West House Flower Pot Wall Painting
(after Marinatos, Spyridon. VI. 1999. Pl. 50)

²⁰⁷Evans, Sir Arthur. 1921-1935. v4:2. 1002-1003.

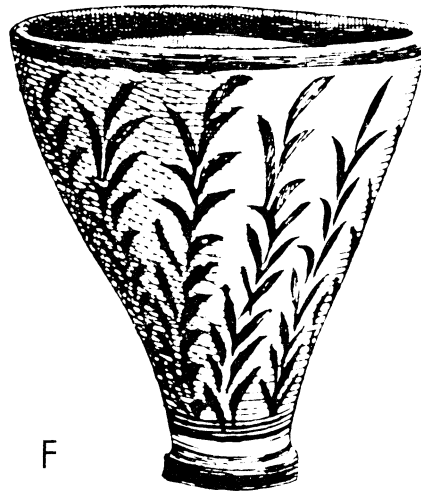


Figure 14. Reconstruction of Flower Pot from Knossos (after Popham, Mervyn. 1977. Fig. 1F.)

In Evans' records of the following years of his excavation at Knossos, there are records of "two handleless cups of the 'flower pot' variety,"²⁰⁸ as well as the more extensive references mentioned earlier. At Tomb V of Palaikastro, Patema, excavators recovered a "bowl with hole in bottom."²⁰⁹ Nicholas Platon reported the discovery of flower pots at the site of Zakros (Figure 16),²¹⁰ and the excavators at Mallia have recorded the discovery of these types of pots as well.²¹¹ Spyridon Marinatos recorded the recovery of a number of such planting pots at the site of Akrotiri on Thera, describing them as "tall, cylindrical, sometimes slightly concave vessels with two lugs... They bear almost always a little hole

²⁰⁸ Popham, Mervyn. "Notes from Knossos, Part I." *The Annual of the British School at Athens*. 72. 1977. 194.

²⁰⁹ Soles, Jeffrey. "Prepalatial Cemeteries at Mochlos and Gournia and the House Tombs of Bronze Age Crete." *Hesperia Supplements*. 24. 1992. 187.

²¹⁰ Platon, Nicholas. *Zakros: The Discovery of a Lost Palace of Ancient Crete*. Charles Scribner's Sons. New York. 1971. 255.

²¹¹ Van Effenterre, Henri; Van Effenterre, Micheline. *Fouilles exécutées à Mallia: exploration des maisons et quartiers d'habitation (1956-1960). Quatrième fascicule par*. Librairie Orientaliste Paul Geuthner. Paris. 1976. 68, Pl. 12F and 14.

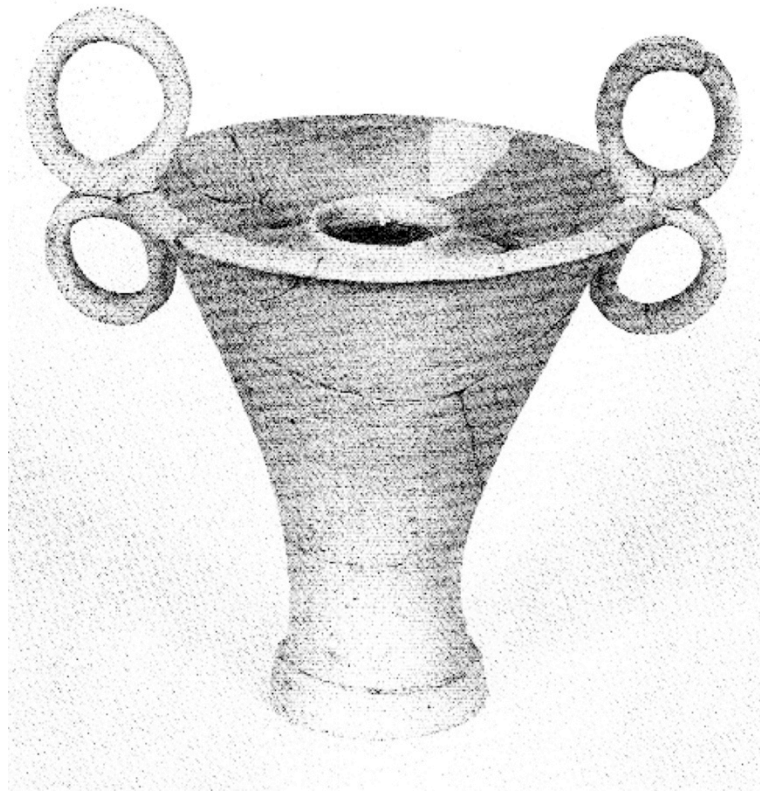


Figure 15. Planting Pot with
Figure-Eight Handles (after
Davies, W.V. and Schofield, L.
1995. Fig. 219A-B)

in the bottom.”²¹² In the 1969 season, the excavators uncovered at least five of these planting pots, three of which were undecorated, of heights between 15.5 and 17.5 centimeters. Two others had floral decorations, with leafy vines or branches creeping straight up the sides of the pots, or curving around and up.²¹³ Others, found in later years, took slightly different forms. For example, one such pot, uncovered in the fourth year of excavation, had a fairly narrow base, widening on the way up, but the mouth was mostly covered, possessing a single hole in the center and surrounded by a few smaller holes.

²¹² Marinatos, Spyridon. *Excavations at Thera V-VI: 1972-1973 Seasons*. vIII. Archaeological Society at Athens. Athens. 1999. 55.

²¹³ Marinatos, Spyridon. vIII. 1999. Pl. 52.1.

Some of these plant pots were decorated, some bare. One particularly interesting example of the decorated variety had lilies painted on the sides, some of which were shedding petals.²¹⁴ Some plant pots, such as one described by J. Walter Graham, resembled the pot from the fourth year of the Akrotiri excavation, but without the closed-off mouth.²¹⁵ However, all of these pots possessed a single hole in the bottom, most of them slightly off to the side.

Planting pots were an integral part of Aegean garden design. As discussed in the previous chapter on Aegean religion, many images in Aegean seals show trees, possibly sacred, within enclosures or in pots or baskets, and it is important to recognize that potted plants probably played an important role in Aegean religious rituals, but this was not the only reason why plant pots would have been important to the design of Aegean gardens. The use of these pots was probably also a reaction to poor soil quality and water restrictions in the Aegean, which necessitated the use of planting pots to concentrate high-quality manured soil as well as water. This is supported by recent studies of soil quality on Late Bronze Age Thera, as well as the depictions of rocky landscapes in the wall paintings.

Two recent soil profile analyses by Davidson and Limbrey, while disagreeing on some of the finer points, concur that the soil quality at the site of Akrotiri was far from optimal. Davidson defines characteristic soils as sandy, with low clay content, leaving them vulnerable to erosion and unable to retain water with any sort of efficiency. Limbrey, who conducted the more recent of the two studies, is slightly more optimistic than Davidson, identifying an A horizon of the soil that is thick enough to support plant life, and pointing out that the presence of clay in the building materials in the site indicated the

²¹⁴ Marinatos, Spyridon. *Excavations at Thera V-VI: 1972-1973 Seasons*. vVI. Archaeological Society at Athens. Athens. 1999. Pl. 83.

²¹⁵ Graham, J. Walter. *The Palaces of Crete*. Princeton University Press. Princeton. 1987. Fig. 141J.

presence of a quantity of clay in the soil, although perhaps from sources that have not yet been located on the island.²¹⁶

There are also reports of poor soil at Cretan sites such as Vasiliki,²¹⁷ and well-developed soils are and were rare at any site on Crete.²¹⁸ And while fresh water would have been more plentiful and accessible on Crete than on Santorini, the fact that the majority of garden sites were in enclosed courtyards would have made it difficult to efficiently irrigate them. Water was most likely brought in manually in the dry season, a time consuming and labor intensive practice. The use of planting pots would have made the fertilization and watering of the garden plants far more efficient.

It has been hypothesized that some plant pots allowed the roots of plants to expand and possibly break out of the pot, or that they were used to grow cuttings from older plants, or to propagate from layers, as Pliny mentioned in his *Natural History*.²¹⁹ The plants in the Aegean examples, however, were most likely meant to stay in the pots permanently.²²⁰ Many are decorated with floral themes, indicating that they were used above ground, as opposed to the Roman practice of setting the pots in the ground.²²¹ The purpose of the undecorated pots is less apparent, as they would not necessarily have been used for show. It is possible the undecorated pots were buried in the earth, either partially or completely, alongside the decorated above-ground pots, to produce some sort of visual layered effect. The shape of many of the plant pots also indicates a rather specific use for the vessels.

²¹⁶ Limbrey, Susan. "Soil Studies at Akrotiri." *Thera and the Aegean World* III. Volume Two: "Earth Sciences." ed. Hardy, D.A. et al. The Thera Foundation. London. 1989.

Davidson, Donal. "Soils on Santorini at ~1500 BC." *Nature*. 272. 1978. 243-244.

²¹⁷ Myers, J. Wilson; Myers, Eleanor Emlen; Cadogan, Gerald; Gifford, John A.. *The Aerial Atlas of Ancient Crete*. University of California Press. Berkeley. 1991. 279.

²¹⁸ Moody, Jennifer and Oliver Rackham. *The Making of the Cretan Landscape*. Manchester University Press. Manchester, UK. 1996. 141.

²¹⁹ Pliny. 1892. XVII, 21.

²²⁰ Carroll, M. *Earthly Paradises*. British Museum Press. London. 2003. 88-92.

²²¹ Day, Jo. 2006. 192.

Most Aegean plant pots are rather narrow and deep, an ideal shape for bulb plants, as their roots go straight down, without side roots extending outward.²²² Lilies and irises, of which family the crocus is a member, are the flowers most frequently depicted in Aegean wall paintings, and they are bulb plants.

As discussed in the previous chapter, most of the proposed garden locations at Aegean sites are courtyards, and many of those were paved.²²³ The use of paved courtyards as garden sites at first does not appear logical, as one cannot grow plants on a paved surface. However, with the use of flowerpots, it is not difficult to turn a paved courtyard into a garden (Figure 17). Given the locations and conditions in which Aegean gardens were created, the use of plant pots, helpful in the Near East and Egypt, was essential in the Aegean. The use of plant pots, like symmetry and water features in Egypt or the centrality of trees in the Near East, defined the Aegean garden.

²²² Sarpaki, Anaya. 1997. 679.

²²³ Day, Jo. 2006. 192.



Figure 17. Courtyard Garden
– Sorrento, Italy. (Photograph
by author)

Chapter 8

Methodology of Future Aegean Garden Excavations and the Analysis of Organic Remains

Over the last hundred years, archaeologists have spent considerable time contemplating and discussing Aegean gardens. As explored throughout this thesis, archaeologists such as Evans, Chapouthier and Demargne, Graham, and Shaw have suggested various areas at Bronze Age sites as the former locations of gardens. Studies of the flowers and trees in Aegean wall paintings have thoroughly analyzed and have suggested what types of plants grew in those gardens. The study of plant pot design and the role of nature in religion have both moved the study of Aegean gardens forward. However, this is not enough; these approaches can take Aegean garden study only so far. The future of Aegean garden study lies in the thorough excavation and examination of garden sites. The currently known garden sites in the Aegean have long been exposed, and any organic materials or soil that might have shed light on the gardens may long since been destroyed or contaminated. However, given the lack of architectural features, the areas may have been neglected enough that subsurface garden features, such as contours or evidence of fertilization, still remain at the soil-based gardens. In addition, there are still unexcavated Bronze Age sites on Crete and in the Cyclades, presenting many opportunities to discover new garden sites. Thus, it is essential to outline a basic methodology for the excavation of Aegean Bronze Age garden sites.

The first step of any garden excavation is identifying the garden location. In most cases, this would involve aerial photography, LiDAR, or any number of other methods of

identification and recording.²²⁴ However, since the majority of identified garden sites in the Aegean are small paved courtyards within the Cretan building complexes, for the most part no garden features, soil-based or architectural, remain. However, it is always possible that larger gardens exist outside the complexes, for the identification of which these methods would certainly be helpful. In the past, the proposed sites of Aegean gardens have been proposed for a number of reasons. Phaistos' rock garden, of course, was singled out for its planting pits and its resemblance to the 'Saffron Gatherers' and "Spring Fresco" geology. The Mallia site is located just off what are likely the former residential quarters, where the elite might have gone to retreat and relax, and was left unbuilt and unpaved throughout several stages of building, hinting at its use as a garden. At Knossos, Evans postulated a garden on a roof terrace based on the presence of numerous plant pots. Keeping in mind the way these gardens were identified will help with the identification of possible garden sites in the future

Once the possible garden sites are located, various tests and forms of analysis can be used to confirm the identifications. The first tests and analyses to be carried out should always be non-destructive. While more destructive methods would not be useful at the paved courtyard sites, at sites like Mallia, or future sites that are likewise unpaved, it is essential to exhaust non-destructive methods before moving on to excavation. These include aerial observation, LiDAR, some soil sampling,

There are two types of conditions in which gardens can be found. The first type of garden is that of the sites identified on Crete; at these more typical sites, the amount of evidence and the state in which the evidence is found varies considerably, based on climate,

²²⁴ Gleason, Kathryn. "Coordinating the Study of Environmental Remains in the Garden Soils." *A Sourcebook for Garden Archaeology*. ed. Malek, Amina Aicha. Peter Lang. Bern. 2011.

exposure, and garden surface. One such form of evidence is the presence of pots or potsherds, usually deposited along with fertilizer or having been used as a planting pot. Other indicators of garden locations include soil discolorations, caused by the introduction of other organic material, such as fertilizers, to the soil, and the presence of irrigation channels. These and other similar features compose the majority of the evidence used to identify ancient garden sites. However, much of this evidence is not available on the surface of the site, since gardens can extend many feet below ground level. The courtyard sites on Crete have been examined to a certain extent, but archaeologists have generally kept to the surfaces at these sites. While unpaved courtyard garden locations like those at Mallia may not retain evidence on the surfaces, due to long exposure, it is certainly reasonable to postulate the continued existence of organic and artifactual evidence below the surface.



Figure 16. Layers of an Ancient Garden. Villedieu, François and Gassend, J.M.
Il Giardino dei Cesari.ed. Villedieu, François. Edizioni Quasar. Rome. 2001.

Sites like those found at Pompeii or Joya de Ceren, on the other hand, are preserved by volcanic materials, often sealing the site so thoroughly and quickly that the soil surfaces of gardens are completely preserved. Should any garden sites be located on Thera, they would be found in this condition. The surfaces of such sites are remarkably revealing, since the contours of the landscape are preserved, as well as the soil discolorations and the architectural features. From this, the layout of the garden can be determined with impressive accuracy. At the Villa Arianna garden site in Stabiae, Italy, once the volcanic rock- the lapilli- had been removed, the original Roman garden surface could be clearly seen. Individual planting beds within the garden were distinctly visible. In addition, as the plants in the garden decompose only volcanic ash or stones are available to fill the cavities that are left behind, leaving lapilli-filled pits where the plants or wooden posts once were.

It is possible, once these pits have been identified and properly documented, to make casts of them and so preserve their size and shape. In the past, this was done with a hard plaster or cement, but recently Kathryn Gleason has been using a flexible rubber-like compound, in order to better preserve the earth around the pits, since the plaster casts required considerable digging around the hole. Once the measurements of the pits have been made, the drawings completed, the photographs taken, and the casts poured, it is possible to begin hypothesizing what types of plants those pits had held.

This approach, however, only works in volcanically preserved gardens. There are many other approaches to the study of ancient gardens that can be employed in the more typically preserved sites. One of the forms of evidence that comes to mind when contemplating garden archaeology is that of plant macroremains. However, Aegean climate is not conducive to organic materials preservation, since the Aegean climate is wet

in the winter and hot in the summer- heat and moisture being two factors that speed decomposition. Little organic material remains on land, particularly after such a long passage of time, and the courtyard potted-plant gardens do not leave much trace behind them in terms of architectural features.

There are a few circumstances in which plant remains are more consistently preserved. Specifically, the plants could be mineralized through association with metals or latrines, frozen, or dessicated; they could also be waterlogged or carbonized. All of these conditions preserve organic materials, although the last two conditions are the most common for the Aegean, as the climate is neither cold enough to consistently freeze nor dry enough to maintain dehydration of the remains.

Bronze Age shipwrecks frequently contain an abundance of organic material, and so shipwreck excavations play an important role in researching the contents of Aegean gardens. At the shipwreck site of Ulu Burun, wrecked off the coast of Turkey in the 14th century BCE, over one thousand samples of botanical materials have been taken from ceramic containers, and those samples have proven to be very informative in regards to the trade of organic materials from the Mediterranean Bronze Age. Olives, figs seeds, grape seeds, various spices like coriander and cumin, charred grains, and pulses and seeds from over forty other types of plants have been found in these wrecks.²²⁵ However, as it is unknown where these plants from the cargo were grown, save for some idea of their regional origins, it is impossible to put them into a garden context.

²²⁵ Haldane, Cheryl. "Direct Evidence for Organic Cargoes in the Late Bronze Age." *World Archaeology*. 24:3. February 1993. 353.

The material that does remain at the sites is usually carbonized- such as the remains of figs, beans, barley, and millet that were discovered at Phaistos.²²⁶ Carbonized remains found in the earth are usually a component of fertilizer,²²⁷ since they are rarely burned until having been removed from where they were grown, and processed. They are rarely found in a context that could tell us what was grown in the garden, only what was grown in the region. There have been exceptions to this; for example, at the gardens of the *Templum Pacis* in Rome, rose bush clippings were burned either in situ or nearby to fertilize the soil.²²⁸ Most of the time, however, while the remains of the more typically preserved gardens of Crete can still tell us about local plant life, they can say little about the gardens themselves.²²⁹ On Thera, on the other hand, volcanic materials are known to have preserved the branch of an olive tree, likely alive at the time of the Thera eruption, well enough that evidence of leaves and twigs still remains.²³⁰ Such preservation indicates the possibility of remains being carbonized in situ within the gardens of the island.

There have, of course, been some non-carbonized organic macroremains found at Aegean sites. Seeds and plant fragments have been discovered in the bottom of ceramic containers, protected by those vessels from the destructive forces of the elements. For example, in the room of the Spring Fresco at Akrotiri, excavators in 1970 discovered the remains of what looked to be onion in the bottom of a 'vase.'²³¹ Other plant remains from the Bronze Age found at Akrotiri on Santorini include barley, fig, almond, beans, lentils, and chickpeas. The almond tree was almost certainly imported to the Aegean from the

²²⁶ Platon, Nikolaos. *A Guide to the Archaeological Museum at Heraclion*. Heraclion, Crete. 1955. 89.

²²⁷ Miller, Naomi and Gleason, Kathryn. 1994. 25-29.

²²⁸ Celant, A. "Le rose del *Templum Pacis* nell'antica Roma." *Informatore Botanico Italiano*. 37.1B. 2005. 898-899.

²²⁹ Gleason, Kathryn. 2011.

²³⁰ Friedrich, Walter L; Kromer, Bernd; Friedrich, Michael; Heinmeier, Jan; Pfeiffer, Tom; Talamo, Sahra. "Santorini Eruption Radiocarbon Dated to 1627-1600 B.C." *Science*. 312. April 28, 2006. 548.

²³¹ Marinatos, Spyridon. *Excavations at Thera V-VI: 1972-1973 Seasons*. IV. Archaeological Society at Athens. Athens. 1999. Pl. 108.

Levant,²³² and may have been included in gardens as an exotic display object.

Unfortunately, none of this evidence comes from the gardens themselves. The remains are found in storage rooms, rubbish piles, or ships, and so there is no garden context through which to interpret them.

However, the analysis of macroremains is not the only approach to take when studying gardens. In fact, soil analysis is often much more revealing than macroremain analysis regarding the location of the gardens, because the soil phosphate tests show whether an area has been manured and cultivated,²³³ and pH tests can help determine what plants could grow there at the site, since different plants tolerate different pH levels.²³⁴ Additionally, non-botanical organic remains such as that of land snails, or other faunal material could assist in the analysis of gardens. The soil also serves as a matrix for artifacts. As Betancourt mentioned in his article on how to recognize gardens and fields archaeologically, the garden tends to be the area with the largest number of potsherds, as the sherds were often thrown into the manure, and gardens are more heavily manured than either crop fields or pastures.²³⁵ While these approaches cannot be used on paved courtyards, soil analysis could prove very informative regarding courtyards with dirt surfaces, like that at Mallia, or perhaps even identifying larger, external gardens. And it is possible that, used in a slightly different manner, soil analysis could even prove useful at determining the contents of the paved courtyard gardens.

The analysis of plant pots is one of the most important and possibly most rewarding approaches to the study of the Aegean gardens. Until now, the study of plant pots has been

²³² Rackham, Oliver. 1990. 390.

²³³ Gleason, Kathryn. 2011. The results from the use of soil phosphate tests have been mixed, as they showed evidence of influence from surrounding architecture. Nevertheless, the usefulness of the tests has not been disproven.

²³⁴ Gleason, Kathryn. 2011.

²³⁵ Betancourt, Philip. 2007. 25.

based upon the shape and decoration of the pots, and what that says about how they were used in the gardens. However, this is not all we can learn from them. The soil in freshly excavated pots can be tested in the same way that soil is tested for earth-planted gardens.

Phytolith analysis, too, could be attempted. While such analyses do not always produce results, there have been sites in the Mediterranean where phytolith testing has revealed the presence of specific plants. For example, at the Petra Pool and Garden site in Jordan, palm phytoliths were recovered, and the soil in the garden of the Villa Arianna at Stabiae contained grass phytoliths.²³⁶ In the Aegean, while phytoliths may be difficult to find in typical conditions, the protected environment within the pots might have been more conducive to the preservation of silicates.

In addition, it might be possible to detect microremains of botanical material in the pots through infrared analysis and mass spectrometry. Recently, researchers from East Carolina University began conducting tests on ancient Mediterranean ‘bathtubs’, it having been proposed that they were actually used to full wool. To test for lanolin residue left behind by the fulling process, the researchers used infrared spectroscopy. First, they scraped a layer of clay from the tub with a scalpel to minimize contamination, and then took swabs using a number of solvents. The final results of the tests were indicative of lanolin residue, and they plan to conduct further tests.²³⁷ It is possible that tests like this could be useful in determining the contents of Aegean planting pots, since water seeping into the clay could have left organic residue from the plants and soil.

²³⁶ Gleason, Kathryn, Personal Communication. May, 2012.

²³⁷ Tillapaugh, Kimberly; Howard, BJ; McCandless, Kyle; Grieve, Susanne; Mazow, Laura; Kennedy, Anthony. *Organic Residue Analysis to Determine the Function of Ancient Bathtubs.* Poster presented at the 2012 Annual Meeting of the American Schools of Oriental Research. November 16-19, 2012. San Francisco, California.

Planting pots are not the only things at the paved garden sites that can be tested for organic residue. Archaeologists at the site of Ramat Rachel, attempting to determine what was grown in the gardens at the site, wondered if pollen residue might have been trapped in the plaster of the garden walls. When they tested the plaster layer by layer they found pollen from a variety of species and, in at least one case, were able to determine both the specific species to which the pollen belonged and the period during which it was grown.²³⁸ Conducting similar tests on plaster from walls near the garden sites in the Aegean could prove useful in identifying the species of plants in the gardens.

The use of infrared spectroscopy to test for organic residue in pots and testing for pollen residue in plaster are quite new approaches, untested in the Aegean, and may not yield results in the Aegean environment. However, they are certainly worth testing; if they are effective, they could reveal a great deal about the species of plants present in the gardens.

Given the unusual form the Aegean garden usually takes, techniques often used on other gardens prove to be unhelpful, or their application must be modified to suit the environment and form of the gardens in the Aegean. Nevertheless, despite the difficulties provided by the climate and the basic paved-courtyard design of the gardens, there are many ways to discover more about the Aegean gardens. Should new prospective garden sites be uncovered, it will be interesting to see what they reveal.

²³⁸ Rinat, Zafir. "Jerusalem Dig Uncovers Earliest Evidence of Local Cultivation of Etrogs." *Haaretz*. 2/2/12. 2/2/12. www.haaretz.com/print-edition/news/jerusalem-dig-uncovers-earliest-evidence-of-local-cultivation-of-etrogs-1.410505.

Chapter 9

Conclusion

The gardens of the Aegean Bronze Age were no doubt influenced to some extent by contact with the cultures of the Near East and Egypt, insomuch as they contained imported plants and animals, and served as elite display. On the other hand, the inhabitants of the Aegean clearly developed and maintained their own garden styles, based on environmental restrictions and their own aesthetic taste and complex relationship with nature.

In the Near East and Egypt, the impressions imparted by descriptions and images of gardens are of firmly managed, entirely domesticated plots of land. Egyptian gardens were for the most part composed of straight rows of trees, with gardeners to tend and contain the plant and animal life, of manicured and carefully shaped trees and bushes. Near Eastern gardens took the form of immense parks, carefully planted with rows of exotic trees and stocked with imported animals. While interactions with the Near East and Egypt may well have introduced exotic plants and animals to Aegean gardens, and may even influenced some aspects of design, the gardens of the Aegean cultures were far from identical to the gardens of those contemporary cultures.

Indeed, far from being the entirely domesticated and controlled displays ascribed to those cultures, it seems that the gardens of the Aegean were designed to appear ‘natural.’ The wall paintings of Aegean settlements almost always impart some sense of wilderness; even in scenes dominated by humans and human activity, some wild landscape or animal in the background or off to the sides shows that the wilderness is never far away. Those images include no angles or straight rows. This is not, however, to say that the gardens

were entirely natural. From what is thus far known, the majority of Aegean gardens were located in paved courtyards, and the plants were displayed in a variety of plant pots- hardly their native environment. However, environmental factors may well have dictated the form of the gardens, based on water limitations and the need to augment the soil to make it more fertile, keeping them small, easily manured, and efficient to water. However, the overall impression given by the available evidence is that the Aegean people possessed a complex relationship with nature that led them to create a more 'organic' design, instead of symmetrical, linear designs like those of the Eastern Mediterranean.

The religious connection of the Aegean people to nature seems to have informed that complex relationship to a considerable extent. Most religious imagery from the Aegean involves trees contained within walled structures, religious rituals taking place in meadows, or plants being transported from one location to another in pots or baskets. Gardens then are likely to be important centers of worship, that use probably stemming from the older use of caves and mountain peaks as nature sanctuaries. Those original places of worship were entirely natural and untamed, and though when religious practice was to an extent transferred to the building complexes, as gardens, the places of worship came more under human control, the sense of wilderness remained, thus creating the balance between nature and humanity seen in many of the wall paintings.

However, despite the impressions imparted by this collection of evidence, further excavation and research is needed to fully comprehend the form, content, and purpose of the Bronze Age gardens in the Aegean. The majority of the evidence available regarding Aegean gardens is indirect, and that is not enough to create a complete understanding of

the Aegean garden. More direct evidence is needed, and that can be acquired through the thorough excavation and examination of fresh garden sites.

Until then, the indirect evidence hints at a garden form that brings the mountains and the meadows home, recreated in tiny courtyards. The Aegean garden balances the natural and the artificial. It exemplifies the idea that “the garden suggests there might be a place where we can meet nature halfway.”²³⁹

²³⁹ Pollan, Michael. “Why Mow? The Case Against Lawns.” *The New York Times Magazine*. May 28, 1989.

WORKS CITED

- Barrett, Caitlin E. "The Perceived Value of Minoan and Minoanizing Pottery in Egypt." *Journal of Mediterranean Archaeology*. 22:2. 2009. 211-234.
- Baumann, Hellmut. *Greek Wild Flowers and Plant Lore in Ancient Greece*. Herbert Press Ltd. London. 1993.
- Betancourt, Philip. "Recognition of Gardens and Fields in the Archaeological Record." *Stephanos Aristeios: archäologische Forschungen zwischen Nil und Istros : Festschrift für Stefan Hiller zum 65. Geburtstag*. ed. Lang, Felix; Reinholdt, Claus; Weilhartner, Jorg. Phoibos. Vienna. 2007. 23-30.
- Bevan, Andrew. *Stone Vessels and Values in the Bronze Age*. Cambridge University Press. New York. 2007.
- Bietak, Manfred. "Minoan Paintings in Avaris, Egypt." *The Wall-Paintings of Thera: Proceedings of the First International Symposium- Volume II*. The Thera Foundation. Piraeus, Greece. 1997. 33-42.
- Bietak, Manfred. *The Synchronization of Civilizations in the Eastern Mediterranean in the 2nd Millennium BC: proceedings of an international symposium at Schloss Haindorf, 15th-17th of November 1996 and at the Austrian Academy, Vienna, 11th-12th of May 1998*. Verlag der Österreichischen Akademie der Wissenschaften. Vienna. 2000.
- Bigelow, Jane M.H. *Ancient Egyptian Gardens. The Ostrakon*. Denver Museum of Natural History. Denver. 2000. 7-11.
- Brown, Francis; Driver, S.R.; Briggs, Charles. *A Hebrew and English Lexicon of the Old Testament: With an Appendix Containing the Biblical Aramaic*. Houghton Mifflin Company. Boston. 1907.
- Brown, A. *Arthur Evans's Travels in Crete 1894-1899*. Archaeopress. Oxford. 2001.
- Carroll, Maureen. *Earthly Paradises*. British Museum Press. London. 2003.
- Casson, Lionel. *The Ancient Mariners: Seafarers and Seafighters of the Mediterranean in Ancient Times*. Princeton University Press. Princeton. 1991.
- Celant, A. "Le rose del *Templum Pacis* nell'antica Roma." *Informatore Botanico Italiano*. 37.1B. 2005. 898-899.

Chapouthier, Fernand; Demargne, Pierre. *Fouilles exécutées à Mallia : quatrième rapport, exploration du palais, bordure méridionale et recherches complémentaires (1929-1935 et 1946-1960). Etudes Crétoises 12*. Paul Geuthner. Paris. 1962.

Cline, Eric. "Monkey Business in the Bronze Age Aegean: The Amenhotep II Faience Figurines at Mycenae and Tiryns." *The Annual of the British School at Athens*. 86. 1991. 29-42.

Cline, Eric. *Sailing the Wine-Dark Sea: International Trade and the Bronze Age Aegean-British Archaeological Reports*. Tempus Reparatum. Oxford. 1994.

Cotterell, Arthur. *The Minoan World*. Charles Scribner's Sons. New York. 1979.

Crawford, Harriet. *Sumer and the Sumerians*. Cambridge University Press. Cambridge. 2004.

Dalley, Stephanie. "Ancient Mesopotamian Gardens and the Identification of the Hanging Gardens of Babylon Resolved." *Garden History*. 21:1. Summer, 1993. 1-13.

Davidson, Donal. "Soils on Santorini at ~1500 BC." *Nature*. 272. 1978.

Davies, W.V. and Schofield, L. *Egypt, the Aegean, and the Levant: Interconnections in the Second Millennium BC*. British Museum Press. London. 1995.

Day, Jo. "Flower-Lovers? Reconsidering the Gardens of Minoan Crete." *The Archaeology of Crop Fields and Gardens*. ed. Morel, Jean-Paul; Tresserras-Juan, Jordi; Matamala, Juan Carlos. Edipuglia. Bari. 2006. 189-195.

Day, Jo. "Crocuses in Context: A Diachronic Survey of the Crocus Motif in the Aegean Bronze Age." *Hesperia: The Journal of the American School of Classical Studies at Athens*. 3. 2011. 337-379.

Dixon, D.M. "The Transplantation of Punt Incense Trees in Egypt." *The Journal of Egyptian Archaeology*. 55. August 1969. 55-65.

Doumas, Christos. *The Wall-Paintings of Thera*. trans. Alex Doumas. The Thera Foundation. Athens. 1992.

Doumas, Christos. *Santorini: A Guide to the Island and its Archaeological Treasures*. Ekdotike Athenon S.A. Athens. 1995.

Doumas, Christos. "Akrotiri, Thera: some additional notes on its plan and architecture." *Krinoi kai Limenes: Studies in Honor of Joseph and Maria Shaw*. ed. Betancourt, P; Nelson, M; Williams, H. INSTAP Academic Press. Philadelphia. 2007. 85-92.

- Drews, Robert. "Sargon, Cyrus, and Mesopotamian Folk History." *Journal of Near Eastern Studies*. 31:4. October 1974. 387-393.
- Eriksson, K.O. "Late Cypriot I and Thera: relative chronology in the eastern Mediterranean." *Acta Cypria: acts of an international congress on Cypriote archaeology held in Göteborg on 22-24 August 1991*. Part 3. SIMA Pocket-book 120. Paul Åströms Förlag. Jönsered. 152-223.
- Evans, Sir Arthur. "Mycenaean Tree and Pillar Cult and Its Mediterranean Relations." *The Journal of Hellenic Studies*. 21. 1901. 99-204.
- Evans, Sir Arthur. *The Palace of Minos at Knossos (Volumes 1-4)*. v1. MacMillan and Co. London. 1921-1935.
- Evans, Sir Arthur. *The Palace of Minos at Knossos (Volumes 1-4)*. v2. MacMillan and Co. London. 1921-1935.
- Evans, Sir Arthur. *The Palace of Minos at Knossos (Volumes 1-4)*. v3. MacMillan and Co. London. 1921-1935.
- Evans, Sir Arthur. *The Palace of Minos at Knossos (Volumes 1-4)*. v4:2. MacMillan and Co. London. 1921-1935.
- Eyre, C.J. "The Water Regime for Orchards and Plantations in Pharaonic Egypt." *The Journal of Egyptian Archaeology*. 80. 1994. 57-80.
- Ferriolo, Massimo Venturi. "Homer's Garden." trans. Nicole Douek. *Journal of Garden History*. 9. 1989. 86-94.
- Foster, Karen Polinger. "The Earliest Zoos and Gardens." *Scientific American*. July 1999. 64-71.
- Friedrich, Walter L; Kromer, Bernd; Friedrich, Michael; Heinmeier, Jan; Pfeiffer, Tom; Talamo, Sagra. "Santorini Eruption Radiocarbon Dated to 1627-1600 B.C." *Science*. 312. April 28, 2006. 548.
- Gleason, Kathryn. "Coordinating the Study of Environmental Remains in the Garden Soils." *A Sourcebook for Garden Archaeology*. ed. Malek, Amina Aicha. Peter Lang. Bern. 2011.
- Gleason, Kathryn. Personal Communication. April, 2012.
- Gleason, Kathryn. Personal Communication. May, 2012.
- Gothein, Marie-Luise. *The History of Garden Art*. ed. Wright, Walter P. trans. Mrs. Archer-Hind. Hacker Art Books. New York. 1979.

- Graham, J. Walter. *The Palaces of Crete*. Princeton University Press. Princeton. 1987.
- Guterbock, Hans. *The Hittites and the Aegean World, Part 1: The Ahhiyawa Problem Reconsidered*. *American Journal of Archaeology*. 87:2. 1983. 133-138.
- Haldane, Cheryl. "Shipwrecked Plant Remains." *The Biblical Archaeologist*. 53:1. 1990. 55-60.
- Haldane, Cheryl. "Direct Evidence for Organic Cargoes in the Late Bronze Age." *World Archaeology*. 24:3. February 1993. 348-360.
- Helms, Mary. *Ulysses' Sail: An Ethnographic Odyssey of Power, Knowledge, and Geographical Distance*. Princeton University Press. Princeton. 1988.
- Herva, Vesa-Pekka. "Flower Lovers, After All? Rethinking Religion and Human-Environment Relations in Minoan Crete." *World Archaeology*. 38:4. 2006. 586-598.
- Hitchcock, Louise. *Minoan Architecture: A Contextual Analysis*. Paul Åströms Förlag. Jonsered. 2000.
- Hitchcock, Louise. "Naturalising the Cultural: architectonised landscape as ideology in Minoan Crete." *British School at Athens*. 15. 2007. 91-97.
- Immerwahr, Sara. *Aegean Paintings in the Bronze Age*. The Pennsylvania State University Press. University Park. 1990.
- Karahashi, Fumi. "Fighting the Mountain: Some Observations on the Sumerian Myths of Inanna and Ninurta." *Journal of Near Eastern Studies*. 63:2. April 2004. 111-118.
- Kellum, Barbara. "The Construction of Landscape in Augustan Rome: The Garden Room at the Villa ad Gallinas." *The Art Bulletin*. 76. 1994. 211-224.
- Knapp, Bernard. "Bronze Age Mediterranean Cultures and the Ancient Near East." *The Biblical Archaeologist*. 55:2. June 1992. 52-72.
- Knapp, Bernard. "Bronze Age Mediterranean Cultures and the Ancient Near East." *The Biblical Archaeologist*. 55:3. September 1992. 112-128.
- Knappett, Carl. "Seeing is Believing: the False Privilege of Images." *Cambridge Archaeological Journal*. 12:1. 2002. 158-161.
- Kuttner, Ann. "Looking outside inside: ancient Roman garden rooms." *Studies in the History of Gardens and Designed Landscapes*. Special issue: *The Immediate Garden and the Larger Landscape*. 19.1. ed. Hunt, J. Dixon. 1999. 7-35.

- Leonard, A. Jr. *An index to the Late Bronze Age Aegean Pottery from Syria-Palestine: Studies in Mediterranean Archaeology v. 114*. Paul Åströms Förlag. Jonsered. 1994.
- Limbrey, Susan. "Soil Studies at Akrotiri." *Thera and the Aegean World III. Volume Two: "Earth Sciences."* ed. Hardy, D.A. et al. The Thera Foundation. London. 1990. 377-383
- Limet, Henri, "The Cuisine of Ancient Sumer." *The Biblical Archaeologist*. 50:3. September 1987. 132-147.
- Lupack, Susan. "Minoan Religion." *Oxford Handbook of the Bronze Age Aegean*. ed. Cline, Eric. Oxford University Press. Oxford. 2010. 251-262.
- Manniche, Lise. *An Ancient Egyptian Herbal*. University of Texas Press. Austin. 1989.
- Manning, Sturt and Hulin, Linda. "Maritime Commerce and Geographies of Mobility in the Late Bronze Age of the Eastern Mediterranean: Problematisations." *The Archaeology of Mediterranean Prehistory*. ed. Blake, E; Knapp, A.B. Blackwell Publishing. Oxford. 2005. 270-302.
- Manning, Sturt. "Clarifying the 'High' v. 'Low' Aegean/Cypriot Chronology for the Mid Second Millennium BC: Assessing the Evidence, Interpretive Frameworks, and Current State of the Debate." *The Synchronisation of Civilisations in the Eastern Mediterranean in the Second Millennium B.C. III*. ed. Bietak, Manfred; Czerny, Ernst. Verlag der Österreichischen Akademie der Wissenschaften. Vienna. 2007. 101-138.
- Manning, Sturt. "Formation of the Palaces." *The Aegean Bronze Age*. ed. Shelmerdine, Cynthia W. Cambridge University Press. Cambridge. 2008. 105-120.
- Manning, Sturt. Personal Communication. April, 2010.
- Marinatos, Nanno. "The Date Palm in Minoan Iconography and Religion. *Opuscula Atheniensia*. 15. 1984. 115-122.
- Marinatos, Nanno. *Minoan Religion: Ritual, Image, and Symbol*. University of South Carolina Press. Columbia. 1993.
- Marinatos, Spyridon. *Excavations at Thera I-III: 1967-1969 Seasons*. Archaeological Society at Athens. Athens. 1999.
- Marinatos, Spyridon. *Excavations at Thera V-VI: 1972-1973 Seasons*. Archaeological Society at Athens. Athens. 1999.
- Masseti, Marco and Bruner, Emiliano. "The Primates of the Western Palaearctic: a biogeographical, historical, and archaeozoological review." *Journal of Anthropological Sciences*. 87. 2009. 33-91.

- Miller, Naomi Frances and Gleason, Kathryn. *The Archaeology of Garden and Field*. University of Pennsylvania Press. Philadelphia. 1994.
- Moody, Jennifer; Rackham, Oliver. *The Making of the Cretan Landscape*. Manchester University Press. Manchester, UK. 1996.
- Morgan, Lyvia. *The Miniature Wall Paintings of Thera: A Study in Aegean Culture and Iconography*. Cambridge University Press. Cambridge. 1988.
- Morgan, Lyvia. "Paintings, Harbors, and Intercultural Relations." *Krinoi Kai Limenes*. ed. Betancourt, P; Nelson, M; Williams, H. INSTAP Academic Press. Philadelphia. 2007. 117-130.
- Myers, J. Wilson; Myers, Eleanor Emlen; Cadogan, Gerald; Gifford, John A. *The Aerial Atlas of Ancient Crete*. University of California Press. Berkeley. 1991.
- Negbi, Moshe; Negbi, Ora. "Domestication of Ornamental and Aromatic Plants in the Aegean: The Case of the Madonna Lily." *The Wall-Paintings of Thera: Proceedings of the First International Symposium-II*. The Thera Foundation. Piraeus, Greece. 1997. 593-602.
- Negbi, Moshe; Negbi, Ora. "Saffron Crocus Domestication in Bronze Age Crete." *World Islands in Prehistory: International Insular Investigations, V Deia International Conference of Prehistory*. ed. Waldren, W. H.; Ensenyat, J. A. Archaeopress. Oxford. 2002. 267-274.
- Nilsson, Martin. *Minoan-Mycenaean Religion and Its Survival in Greek Religion*. C.W.K. Gleerup. Lund. 1950.
- Oates, Joan. "Trade and Power in the Fifth and Fourth Millennia BC: New Evidence from Northern Mesopotamia." *World Archaeology*. 24:3. February 1993. 403-422.
- Oppenheim, A. Leo. "On Royal Gardens in Mesopotamia." *Journal of Near Eastern Studies*. 2:4. 1965. 328-333.
- Pendlebury, J.D.S. *The Archaeology of Crete; an Introduction*. Methuen & Co, ltd. London. 1939.
- Platon, Nikolaos. *A Guide to the Archaeological Museum at Heraclion*. Heraclion, Crete. 1955.
- Platon, Nicholas. *Zakros: The Discovery of a Lost Palace of Ancient Crete*. Charles Scribner's Sons. New York. 1971.
- Pliny. *Natural History*. trans. John Bostock. George Bell and Sons. London. 1892.

Podany. *The Brotherhood of Kings: How International Relations Shaped the Ancient Near East*. Oxford University Press. Oxford. 2010.

Pollan, Michael. "Why Mow? The Case Against Lawns." *The New York Times Magazine*. May 28, 1989.

Popham, Mervyn. "Notes from Knossos, Part I." *The Annual of the British School at Athens*. 72. 1977. 185-195.

Rackham, Oliver. "The Flora and Vegetation of Crete and Thera Before and After the Great Eruption." *Thera and the Aegean World I*. The Thera Foundation. London. 1978. 755-764.

Rackham, Oliver. "Observations on the Historical Ecology of Santorini." *Thera and the Aegean World III. Volume Two: "Earth Sciences."* The Thera Foundation. London. 1990. 384-391.

Riehl, Simone; Brysona, Reid; Pustovoytova, Konstantin. "Changing growing conditions for crops during the Near Eastern Bronze Age (3000–1200 BC): the stable carbon isotope evidence." *Journal of Archaeological Science*. 35:4. April 2008. 1011-1022.

Rinat, Zafir. "Jerusalem Dig Uncovers Earliest Evidence of Local Cultivation of Etrogs." *Haaretz*. 2/2/12. 2/2/12. www.haaretz.com/print-edition/news/jerusalem-dig-uncovers-earliest-evidence-of-local-cultivation-of-etrogs-1.410505. 4/12/12.

Sarpaki, Anaya. "Plants Chosen to be Depicted on Thera Wall Paintings: Tentative Interpretations." *The Wall-Paintings of Thera: Proceedings of the First International Symposium- Volume II*. The Thera Foundation. Piraeus, Greece. 1997. 657-680.

Schafer, Jörg. "The Role of 'Gardens' in Minoan Civilisation." *Proceedings of an International Symposium on Civilizations of the Aegean and their Diffusion in Cyprus and the Eastern Mediterranean 2000-600 B.C.* ed. Karegeorghis, V. 1992. 85-87.

Semple, Ellen Churchill. "Ancient Mediterranean Pleasure Gardens." *Geographical Review*. 19:3. July 1929. 420-443.

Shaw, Maria. "The Aegean Garden." *American Journal of Archaeology*. 97:4. 1993. 661-685.

Shelmerdine, Cynthia. *The Aegean Bronze Age*. Cambridge University Press. Cambridge. 2008.

Smith, Sidney. "Notes on 'The Assyrian Tree.'" *Bulletin of the School of Oriental Studies*. University of London. 4:1. 1926. 69-76.

Soles, Jeffrey. "Prepalatial Cemeteries at Mochlos and Gournia and the House Tombs of

Bronze Age Crete.” *Hesperia Supplements*. 24. 1992.

Strasser, Thomas. “Location and Perspective in the Thera Flotilla Fresco.” *Journal of Mediterranean Archaeology*. 23:1. 2010. 3-26.

Tenenbaum, Frances. *Taylor’s Encyclopedia of Garden Plants*. Houghton Mifflin Harcourt. New York. 2003.

Thomason, Alison Karmel. “Representations of the North Syrian Landscape in Neo-Assyrian Art.” *Bulletin of the American Schools of Oriental Research*. 323. August 2001. 63-96.

Thompson, Dorothy Burr. “The Garden of Hephaistos.” *Hesperia*. 6:3. The American Excavations in the Athenian Agora: Twelfth Report. 1937. 396-425.

Tillapaugh, Kimberly; Howard, BJ; McCandless, Kyle; Grieve, Susanne; Mazow, Laura; Kennedy, Anthony. *Organic Residue Analysis to Determine the Function of Ancient Bathtubs*. Poster presented at the 2012 Annual Meeting of the American Schools of Oriental Research. November 16-19, 2012. San Francisco, California.

Trowbridge, Peter; Bassuk, Nina. *Trees in the Urban Landscape: site assessment, design, and installation*. John Wiley. Hoboken, NJ. 2004.

Van Effenterre, Henri; van Effenterre, Micheline. *Fouilles exécutées à Mallia: exploration des maisons et quartiers d’habitation (1956-1960). Quatrième fascicule par*. Librairie Orientaliste Paul Geuthner. Paris. 1976.

Van Erp-Houtepen, Anne. “The Etymological Origin of the Garden.” *Journal of Garden History*. 3. 1986. 227-231.

Villedieu, François and Gassend, J.M. *Il Giardino dei Cesari: Dai palazzi antichi alla vigna Barberini, sul monte Palatino*. ed. Villedieu, François. Edizioni Quasar. Rome. 2001.

Von Stackelberg, Katharine T. “Eastward in Eden: The Pre-Classical Roots of Meaning in Mediterranean Gardens.” In Volume 1: *Antiquity*, ed. Kathryn Gleason, of *A Cultural History of Gardens* (6 vols). eds. Michael Leslie and John Dixon Hunt. Berg Publishers. London (in press.). 2012.

Warren, Peter. “The Miniature Fresco from the West House at Akrotiri, Thera, and Its Aegean Setting.” *The Journal of Hellenic Studies*. 99. 1979. 115-129.

Warren, Peter. “Minoan Crete and Pharaonic Egypt.” *Egypt, the Aegean, and the Levant: Interconnections in the Second Millennium BC*. Ed. Davies, W.V; Schofield, L. British Museum Press. London. 1995. 1-17.

Weingarten, Judith. "The Transformation of Egyptian Tawaret into the Minoan Genius: A Study in Cultural Transmission in the Middle Bronze Age." *Studies in Mediterranean Archaeology*. 88. Paul Åströms Förlag. 1991. 3-15.

Wicker, F.D.P. "The Road to Punt." *The Geographical Journal*. 164:2. 1998. 155-167.

Wilkinson, Alix. "Symbolism and Design in Ancient Egyptian Gardens." *Garden History*. 22:1. Summer 1994. 1-17.

Wilkinson, Alix. *The Garden in Ancient Egypt*. Rubicon Press. London. 1998.

Wiseman, D.J. "Mesopotamian Gardens." *Anatolian Studies*. 33. 1983. 137-144.

Xenophon. *Economics*. <http://perseus.uchicago.edu/perseus/cgi/citequery3.pl?dbname=GreekTexts&getid=0&query=Xen.%20Oec.%201.1>. 3/17/12

Animal Diversity Web. "Cercopithecus mitis." http://animaldiversity.ummz.umich.edu/site/accounts/pictures/Cercopithecus_mitis.html, 5/10/10.

Archaeological Museum of Heraklion. http://www.interkriti.org/crete/iraklion/heraklion_archaeological_museum.html?vpg=2. 5/7/12.

Britannica. <http://www.britannica.com/EBchecked/topic/103470/ceremonial-object/66438/Plants-and-plant-representations>. 1/29/11

Brooklyn Museum Website. <http://www.brooklynmuseum.org/opencollection/objects/3524/>. 5/22/10

Internet Center for Wildlife Damage Management. <http://icwdm.org/handbook/mammals/wildpigs.asp>. 4/21/12.

The Pennsylvania Sumerian Dictionary. <http://psd.museum.upenn.edu/epsd/nepsd-frame.html>. 2/11/12.

Thera Foundation Wall Painting Exhibition. <http://www.therafoundation.org/wallpaintingexhibition/>. 4/13/12.

Vervet Monkey Foundation. http://www.vervet.za.org/vervets/vervet_home.asp. 5/10/10.